

WORLD'S BIGGEST MODEL CAR CONTEST

OCTOBER 1967

50¢

IND

MODEL CAR & SCIENCE

HOW TO
PHOTOGRAPH
YOUR CAR

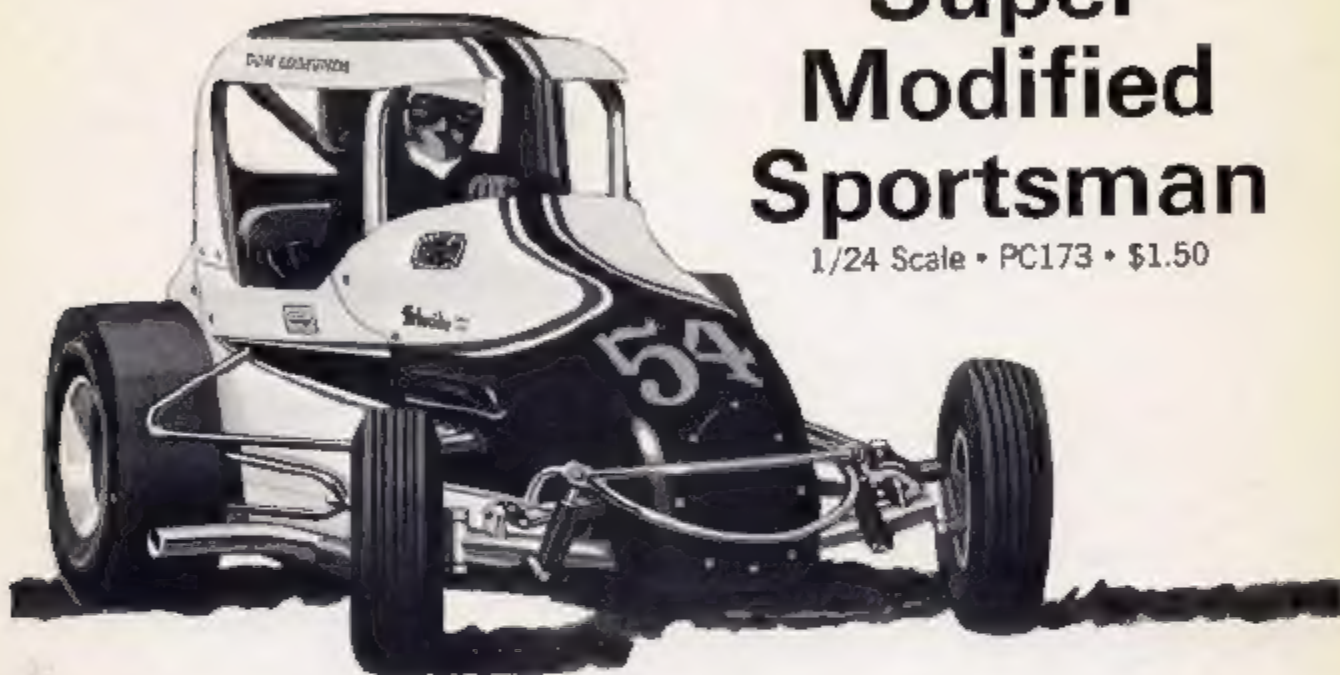
CONCOURSING
MODEL AIRPLANES

THE LATEST IN RADIO CONTROLLED RACING CARS

**This is a special kind of model kit anyone can put together!
It makes a superb model of a real car everyone can enjoy!**

Super Modified Sportsman

1/24 Scale • PC173 • \$1.50



Realistic Copy of Don Edmunds' All-Out Creation

Super Modifieds, the ultra high performance cars evolved from jalopy races are going big. This is the Super Modified Sportsman, one of the best, a Monogram authentic model of the all-out creation of Don Edmunds, 1957 Indy "Rookie of the Year." Veteran and beginner modelers will enjoy it no end. Slot fans can very easily put the Sportsman body on a hot 1/24 chassis and they

will experience a new racing thrill.

Super-designed with one-piece upper body shell with the lid (roof) attached and bottom pan and ends. One-piece tube type frame, Chevy engine with detailed Hilborn manifold and cylinder heads, radiator, two roll bars, gas tank, drivers seat, instrument panel, rotating wheels and racing steering wheel. Chrome finished rocker covers, nerf bars,

wheel guards, radius rods, drag links, knock-off caps, etc. Black rubber-like tires, slicks with white-wall inserts. Decal racing numbers and striping.

It's a new and different kind of car model. Monogram fine quality and superb detail. Get a Super Modified Sportsman at your favorite store today.



Monogram Models, Inc.,
Morton Grove, Illinois.

● ● ● ● ● ● ● ● ● ●



MODEL CAR & SCIENCE

Volume 5, Number 10

October, 1967

PUBLISHER
Stephen D. Urette

EDITOR
Raymond E. Hoy

TECHNICAL EDITORS

Chris Chan
Don Emmons
Bob Hoepfner
Harry Bradley
Phil Willen
Charles Eckles
George Siposs

ART DIRECTOR
Chuck Quesser

DELTA MAGAZINES, INC.
ARGUS PUBLICATIONS GROUP

WESTERN ADVERTISING DIRECTOR

Marvin Patchen
131 Barrington Place
Los Angeles, California 90049
Phone: 213/532-0186, 686-1323

EXECUTIVE DIRECTOR

Clinton Clark
Build Building
Suite 540
535 Griswold Ave.
Detroit, Michigan 48226
Phone: 313/463-5555

ADVERTISING MANAGER
George Elliott

PRODUCTION DIRECTOR
D. L. Ruth

PRODUCTION MANAGER
Anko Janzen

MODEL MAIL	5
<i>Our readers write</i>	
NEW PRODUCTS	8
<i>The latest and the best</i>	
JUST PLANE PERFECTION	10
<i>Own your own air "wing" — in 1/72 scale</i>	
THE HO RALLY ROAD — PART III	16
<i>Pitts, fights, and laps!</i>	
REBEL ANGLIA	22
<i>A look at a hot East Coast B/Gas Bomb!</i>	
THE KING OF THE OVAL	24
<i>Duplicating the Travis-Meyer Drake in HO</i>	
MODEL OF THE MONTH	28
<i>Beautiful bombs from you, our readers!</i>	
TOYOTA-CORONA	32
<i>R/C sedan racing for fun!</i>	
SPEED AND TECH	35
<i>The news from the West's "Numb Thumb"</i>	
FUNNY HEARSE	36
<i>Our MC&S "Ghoul" buries you with his talent</i>	
WINNERS NAMED IN GIANT CONTEST	38
<i>You've been waiting, now here they are!</i>	
SUN, SEA, AND SAILS	44
<i>"Salty Siposs" takes you sailing</i>	
DETAIL FOR REAL	48
<i>The word from Don the model maker</i>	
THE QUICK-CHANGE CHASSIS	50
<i>Here's a great frame for motor testing</i>	
MC&S GOES TO THE "NATS"	52
<i>The "Grand Prix" of model airplane competition</i>	
PHOTOGRAPHING YOUR CAR	56
<i>You've been asking how to go about it!</i>	
HONDA!	65
<i>Walkden Fisher builds one — in 1/32 scale</i>	
CLASS RACING — WHAT IT'S ALL ABOUT	68
<i>Here's the way the racing game works</i>	

ON THE COVER — The cars that adorn our cover are the handiwork of some of the entrants in the gigantic Fisher Craftsmans Guild competition. If this doesn't give you something to shoot for, we don't know what it will take!

MODEL CAR & SCIENCE is published monthly by Delta Magazines, Inc. Executive offices and Subscriptions, 131 Barrington Place, West Los Angeles, California 90049. Telephone GRanite 8-3826. Single copy price: 50 cents. Second class postage paid at Spring, Illinois. Subscription rate: 12 issues for \$5.00, U.S. and possessions. 12 issues for \$6.00, all foreign countries and Canada. All editorial contributions and advertising inquiries should be addressed to Editor, MODEL CAR & SCIENCE, 131 Barrington Place, West Los Angeles, California 90049. Unsolicited contributions should be accompanied by return postage and Delta Magazines, Inc. assumes no responsibility for loss or damage to such unsolicited material. Printed in U.S.A. Copyright 1966 by Delta Magazines, Inc.

model mail



HO SCENERY, AGAIN

Where can I get Perma-Scene, HO size trees, and HO size people?

I would definitely like to see more on the HO scene. Thank you for any information you can give.

Mike Prausa
Waukesha, Wis.

Go to a hobby shop that specializes in model railroad equipment. The yellow pages of your phone book list hobby shops under "Hobbies." Look up a shop or two near you. They can order any of the above for you if they don't happen to have it in the store.

MODEL OF THE MONTH

Can you enter boats in the MCS Model of the Month Contest? Thanks for your help, and I like your magazines.

Dave Versluys
Grand Rapids, Mich.

With our new "All models are great" format, we not only will allow boats to enter the Model of the Month contest, we will encourage them, as well as planes, trains, rockets, and (of course) cars and/or trucks. If you have a model that is out of the ordinary, or super-detailed, or just a clever adaptation of some kit, snap some photos of it and send them in.

Incidentally, check this issue for "How to Photograph Your Model." It should help.

WHAT IF IT WON'T START?

Last Xmas I received a factory rewind that was really a hot engine until the other day. It started sparking on the commutator and smoking. I took it home and put an old set of

brushes in it that were in better shape. They helped, but now the engine will not start by itself. Have one of the windings shorted out, or does the whole engine have to be rewound?

Scot Hoag
Madera, Calif.

Please, Scott, in a model car it's a motor. A real car has the engine. It appears that your worst fears are true. When a motor refuses to start by itself, and runs slower than normal too (which we assume this one does), then there is a short in the windings on one of the poles of the armature. It is almost impossible to rewind just one pole, so its looks like a complete rewind is the only answer here.

COMMENTS FROM (THE GREAT) DOWN UNDER

In your March issue I found the story of the \$5 Speedy Special. I decided to build this great car, and it moves like wow! One problem is that \$5 price tag. It's more like \$6.95 out here!

Anyway, thought you would like to hear something about the cars and tracks here in Brisbane. Cars are much the same as in the States, but faster?

What class can a Sting Ray race in? I'm racing one in "stockers," and another bloke I know is racing the same shell in GT.

John Pfeffer
Brisbane, Australia

You picked a good one in asking about the correct racing class for the Sting Ray. In full size racing, the car can, and has, run as a Production, Modified Sports, or a GT car. As a model, the class will depend on the rules where you race. Most designate a car with a roof as a GT Class car, with the other cars (roadsters and convertibles) as just plain sports cars. You, apparently, have a class for cars that are classified as "Production" class cars in full-size racing. The Sting Ray belongs here also. In short, the Sting Ray can race in either a GT class or in a Production ("Stockers") class.

READERS COMMENT ON OUR 'NEW' MAGAZINE

I think the idea of you guys changing the best model car magazine into a magazine for all kinds of models is awful!

Rick Smith
Seattle, Wash.

Finally, someone has decided

The Soldering Knife.



X-acto now has a soldering iron that turns into a hot knife. All you do is change tips.

A perfect tool for building model airplanes, trains or cars. Use the hot knife to remove epoxy or flesh, cut plastics, rework connectors. Cut and seal nylon cord in one operation.

Develops up to 720°F. Handle remains cool.

No. 378 X-acto Soldering Iron and Hot Knife. \$4.00



X-acto® Precision Tools, Inc. Dept. B
48-41 Van Dam Street, L.I. City, N.Y. 11101



AMT CORPORATION
1225 East Maple Road
Troy, Michigan 48064
The World's Largest
Model Car Manufacturer

Slot Cars & Accessories by **DYNAMITE**
MODELS INC.
a subsidiary of AMT Corp.



NEW 1967 1/2
FALL & WINTER
ISSUE



ALL NEW!

1967 1/2 MODEL CAR
CATALOG

144 BIG PAGES!

ORDER BY MAIL!

• THOUSANDS OF
CARS • SLOT CARS
• PARTS • TOOLS
• SUPPLIES •
SEND 25¢ (for 5 new 5¢
coupons for YOUR COPY)

NEWSSTAND PRICE 50¢

auto world • BOX 961
SCRANTON, PA.

I enclose 25¢ (at stamp) Send my 1967 1/2 Catalog! ☐ MS

Name

Address

City

State ZIP

**Lotus 40 fully assembled
READY TO RACE**



\$1298

Including
Cox Controller

Authentic 1/24th Scale ready-to-race version of the Lotus 40 takes advantage of the big car's wide, low profile to get lots of tire on the track and keep CO low.

Features: • Lotus type mag wheels. • 3 Blade knock-off auto. • Fantastic full bodied painted driver with helmet, goggles and shoulder harness. • Actuator steering. • Chromed roll bar, velocity and wheelie stacks, lights, etc. • Detailed interior and seats, steering and dash.

FREE Cox MK3 Controller with each car of MK4 or S desired, add \$1.00.

Order from your dealer. If not available, order direct. Send check or money order (add 5% tax in Calif.).

DEALERS! Send for free brochure on model products and "How to stay in Slot Races."

FRED'S SPECIALTIES INC.
Box 2152, Santa Ana, Calif. 92707

**"WHY
did it happen
to my baby?"**

**FIGHT BIRTH DEFECTS
Join MARCH OF DIMES**



**Think small. If you save one
person from hunger, you
work a miracle. Give to CARE,
New York 10016**

to publish a model magazine that has something other than cars. Congratulations to all of you at MCS (or whatever you call it). How about some articles on detailing the display model planes?

Paul Robinson
Detroit, Mich.

I'm one of those model builders who likes any kind of models. When I picked up the last issue, I was very pleasantly surprised to find something besides just cars. It's good to know that I'm not the only modeling nut in the world. Keep up the good work.

Steve Browning
San Mateo, Calif.

Car models are boss. Other models are for kids. I want more funny car articles.

No Name
Boston, Mass.

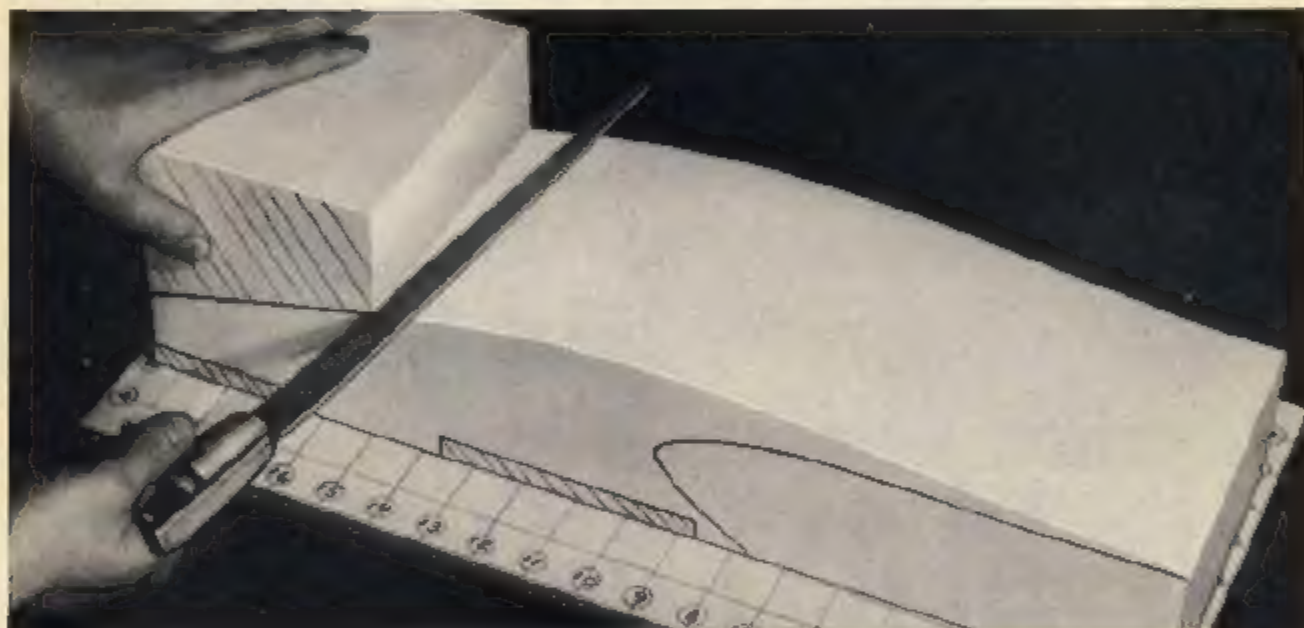
When we decided to add all types of models to the pages of MCS, we expected some of you would be a bit unhappy. We do hope that those of you who are "cars only" bugs will stick with us.

The cars we do feature will be better than ever, and you may just find out that some of the other types of models are every bit as "boss" as some cars. There's a big thrill in store for you when you finish that first airplane, or truck, or rocket model, and find that it looks even more realistic and true-to-life than most of the cars you've built. If you don't believe it, just try it. The reason why other types are more realistic is the simple fact that you are not as familiar with how a Skyraider airplane, for example, should look as you are with the "look" of a Chevy. You expect the Chevy model to look "just so" — they seldom do. Try it yourself, and do keep those letters coming. We want to know what you want to see and we want to hear what you don't want to see.

The above readers opinions are only random samples of our huge pile of mail commenting on the NEW MCS. What's YOUR opinion?



New space age polyurethane blocks speed up building of your 1968 Fisher Body Craftsman's Guild model car!



Win a \$5,000 College Scholarship! Cash awards! \$117,000 worth of prizes in all!

Word is out. New space-age plastic is in. It cuts modeling time from weeks and months to a matter of hours.

You can saw it, you can carve it, file it, sand it into the exact shape you're looking for. Fills and reworks like magic, then new polymers seal and permit a mirrorlike finish.

So, it's extra easy to win one of the 1,078 awards worth \$117,000 in the Fisher Body Craftsman's Guild Car Competition!

Mail the coupon today for your free booklet of rules and car-building instructions. The Guild Technical Service will tell you where to get this new space-age, rigid foam plastic, and how to use it.

You'll also receive regular editions of the Guild newspaper, loaded with helpful hints on how to walk off with one of the \$5,000 first prize scholarships.

Boy Scouts, Hear This!

Your model car, built according to Craftsman's Guild rules, earns you the Model Building Merit Badge. Check your Merit Badge Counselor for further details.

FISHER BODY CRAFTSMAN'S GUILD

Mail coupon to: Fisher Body Craftsman's Guild, Dept. MCS
Warren, Michigan 48090

Please send me the free instruction booklet: "Designing and Building a Model Car." And enroll me in your Model Car Competition.

NAME (Print) _____

First Name Middle Initial Last Name

ADDRESS _____

(Print)

CITY, STATE, ZIP _____

(Print)

This competition approved by the Committee on National Contest and Activities of the National Association of Secondary School Principals.

Important: Only boys born in the following years are eligible. Check the year you were born below.

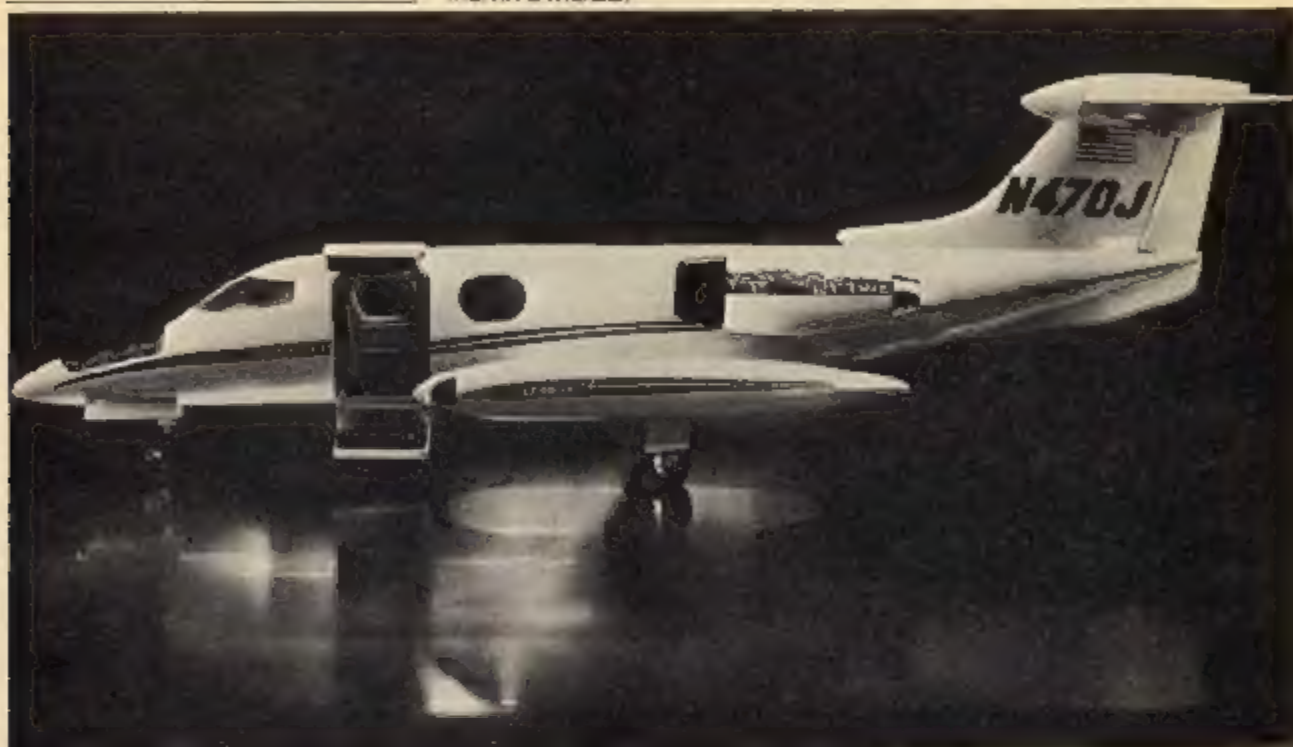
Senior Division	Junior Division
1947 _____	1952 _____
1948 _____	1953 _____
1949 _____	1954 _____
1950 _____	1955 _____
1951 _____	1956 _____

1,078 AWARDS
TOTALING \$117,000

2—\$5,000 Scholarships
2—\$4,000 Scholarships
2—\$3,000 Scholarships
2—\$2,000 Scholarships
10—\$1,000 Scholarships
1,060 Regional and State Awards totaling \$78,000

NEW PRODUCTS

You don't have to make millions to own a Lear Corporation jet! IMC has taken the pain out of acquiring this sleekster, getting the price down to an unbelievable \$2,001! Well, maybe you can't actually get in the thing, but that's the only drawback! Would you believe transparent red and green running lights, an opening cabin door, and removable inspection panels? They're all there, plus vinyl tires, chromed parts, and a detailed interior. You'll see a complete "how to" on this beautiful ship in next month's MC&S!



9 8 7 6 5 4 3 2 1 0

BLAST OFF

WITH NEW SPACE AGE FUN!

DESIGN... BUILD... FLY YOUR OWN ROCKETS!
GOOD FOR MANY FLIGHTS... UP TO 2500 FEET!

Choose your own exciting rocket adventure from the Estes safe, complete program of model rocketry... Build altitude or design competition models... Build scale models like the 37" flying scale model of the Saturn IB, in kit form... Experiment with the CAMROC rocket aerial camera which takes pictures automatically from hundreds of feet in the air — available only from Estes Industries. Learn more about this scientific space-age hobby through Estes research and development, reported in MODEL ROCKET NEWS — free to customers. Keep pace with space science.

START TODAY WITH THIS STARTER SPECIAL

Includes Astron ALPHA kit, 3 engines, design manual, full instructions. Order No. DSK-20... \$2.00

Above kit plus electric launcher — No. DSK-650... \$6.50

New 88 page fact-filled illustrated catalog... 25¢
(free with kit order)

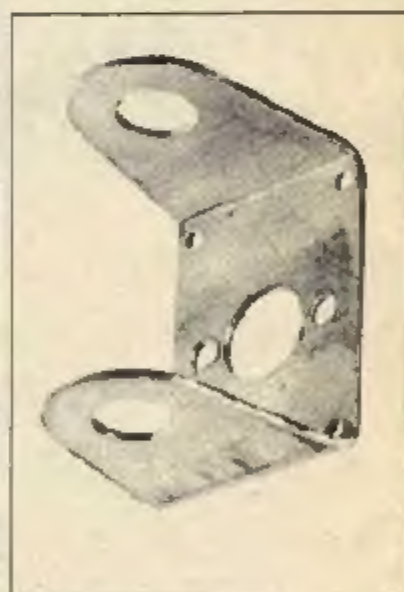
ESTES INDUSTRIES, DEPT. 43
Penrose, Colorado 81240

☐ DSK-20... \$2.00 ☐ DSK-650... \$6.50 ☐ CATALOG... 25¢

NAME.....

ADDRESS.....

CITY..... STATE..... ZIP.....



Versatile to the rescue! Owners of the snarling little "SS-101" can, will breathe easier, thanks to this great new brass scratchbuilder motor mount, selling for just 49¢! Screws right to the back of the SS-101 low profile motor, which simplifies the scratchbuilder's job considerably! Available at good hobby shops and raceways everywhere.





Go from shelf to slot with Mono-gram's latest \$1.50, 1/24 scale kit, the famous Don Edmund's Super Modified Sportsman oval track car. This 1/24 scale hustler looks great as a handsome shelf model (it's loaded with chrome detail, and comes

with full-color decals) or as a slot car. Duplication of the real car is exact, right down to the tube frame and roll cage, plus one-piece upper body. Sure, the full-race "327" Chev V-8 is there!



It Grinds
It Polishes
It Deburs
It Carves
& It Drills.
It's X-acto's new
Cordless
Power Drill.

A battery operated hobby drill "geared" to deliver the power needed for drilling metals and plastics used in model building.

X-ACTO #376 CORDLESS POWER DRILL SET Includes drill bit, grinder, center punch and two extra collets. \$5.95 complete, in carrying case (less batteries). At fine hobby stores, or write:

x-acto, inc.

World's largest maker of hobby tools.
Dept. No. 7 48-41 Van Dam St.
Long Island City, N. Y. 11101



WILD! FUNNY CAR 1/25 SCALE

BY **JO-HAN**

HAULIN HEARSE

\$2.00



4-WHEEL DRIVE
TWIN HEMI ENGINES

4 RACEMASTER SLICKS • RAM TUBES
TWIN MOON TANKS • TWIN DRAG CHUTES
HURST MAG WHEELS • RAM TUBES
COMPETITION BUCKET SEATS
FIRE EXTINGUISHER

ALSO 1934 MERCEDES-BENZ 500K • 1931 CADILLAC V-16 SPORT PHAETON
CADILLAC AMBULANCE • CHRYSLER TURBINE CAR • CADILLAC HEARSE
1931 CADILLAC V-16 CABRIOLET • 1931 CADILLAC V-16 TOWN BROUGHAM

JO-HAN MODELS, INC. 17255 MORAN - DETROIT, MICH. 48212 • DEPT. MCS.

JUST PLANE PERFECTION!



By Robert Schleicher

Sure it's hard to improve on Revell's 1/72 airplane line, but we can try, can't we?



This Revell 1/72 P-47D Thunderbolt has all of the detail and markings of the USAF original, is so realistic it looks as though it could actually fly!

The most hoped for view of the Fokker D-VII, according to French and British pilots of World War I. Again this is but a 1/72 scale Revell model.



Could be in the clouds over France in the early 1900's, but these are 1/72 scale models of the WWI Fokker D-VII by Revell. Price? only sixty cents!



How do you measure the value of your hobby? In how many models you have? Or in how well detailed they are? Or perhaps in the number of hours of fun and pleasure you derive from model building?

By almost any of these measures, the airplane kits on these pages are proven values. The small size of the planes is an asset in that it allows as much space as possible for a collection of several, with each plane in the same 1/72 scale proportion to all of the rest. In roughly 4 x 4 inches of space, each of these kits packs in detail galore and there's still room to add the personal detail touches to provide that custom-crafted look of realism.

The number of hours you must devote to the assembly of one of these kits can be as many or as few as your budget of patience will allow. A basic kit can be completed in as little as an hour allowing non-work time for paint to dry. Adding detail and paint to match the Fokker (pictured with the winged torch on these pages) can take dozens of enjoyable hours. Simply take the amount of time you wish.

The only real secret to getting



Note the difference in the markings and insignia on these two models. Both are Revell's Fokker D-VI with added details and decals by the modelers who built them.

During the early stages of WWI, the German pilots painted their planes to suit themselves, so a sight like this could have been typical in real life.

An on-the-shelf view of the Revell Fokker D-VII reveals that the builder of this kit has added details like steps, handles, braces, and markings.



Not all camouflage was sky or ground simulation. The 1/72 scale Revell Hawker Hurricane is an accurate duplication of the markings used on British Night Intruder squadrons during 1942 — all black.



the ultra-realistic look with these models is a mixture of proper paints, good reference material on the full-size aircraft, and time. The non-gloss, or "flat" finish paints are best. Revell offers a starter kit of flat paints specially designed for aircraft camouflage which includes 6 colors and thinner. The least expensive source of information on the full-size planes is your public library. Take a good look at the books available here or, for a really complete technical history, factual stories, and color paintings of the correct colors and insignia of one particular plane, we recommend the Profile magazines. Try a well-stocked hobby shop for these or send a stamped, self-addressed envelope to Aeronautica, Dept. MS, 7506 Clybourn, Sun Valley, California 91352, for an up-to-date catalog of the latest issues. Most of the back issues are still in stock.

All of the planes on these pages are amateurs' entries in the world-wide (excluding the U.S.A.) model contest held last year by Revell. With just a bit of experience, you too can do as well-detailed a job of model building.



A starter assortment of items for building shelf model warplanes includes: flat camouflage paints, #1 and #00 brushes, glue, single edge razor blades, and the plane

For truly authentic paint styles and markings the Profile magazines are unrivaled. Color pictures plus in-depth historical coverage of the plane featured.



Exercise extreme care in cutting the parts away from the "tree" they are molded on. A sharp single edge blade is best

The small specks of excess plastic must be carefully trimmed from the edges of wheels and rims



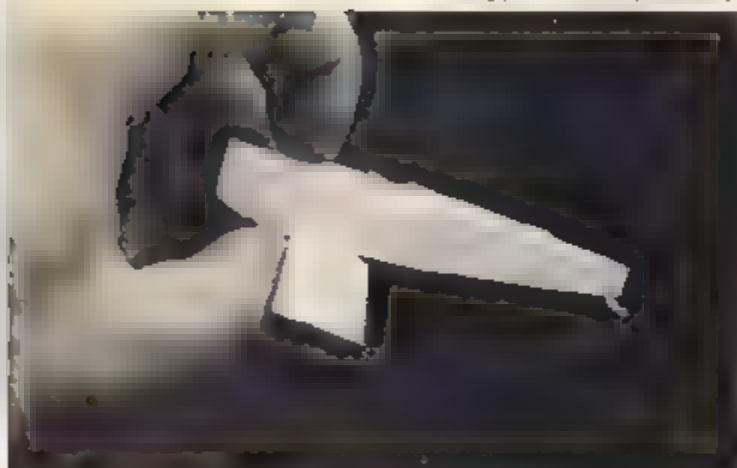
On some surfaces, small circles of thin plastic are left by the molding process. Scrape them off gently, don't damage





The thin lines of plastic on the edges of the wings and other flat parts must be scraped flush with the surface

Check the fit of each and every part before touching that tube of glue. If necessary, trim to fit perfectly



Use the nail-like applicator from the glue tube or a toothpick, to apply the glue to the inside edges only



To paint the unusual "lozenge" camouflage pattern, sketch the outlines on the wing surfaces with light pencil marks



Always shake flat paint very well before brushing





Use the number 00 paint brush to paint each separate "lozenge" of the camouflage area. Do edges first, then center.



Cut each decal apart from others. Dip decal in water, then set on a scrap of cardboard to soak for a minute. Slide off.



To get the decals to "snuggle" in over ribs and curves, touch entire decal surface with Solvaset fluid. Air dry.

These two Revell Fokker D-VII's display some of the authentic styles of paint and camouflage used during the first war.



THE HO RALLY ROAD

Part
III

By Robert Schleicher

This month our 1/87th scale workman shows you how to build the pits, add lights, and count laps!



The pit buildings we selected for the ultimate in HO tracks are made by Corgi, the same company that makes the cast metal collector's cars. These buildings are about 1/48 scale which really makes them a bit too big for HO, and a bit too small for 1/32 or 1/24 scale. Fortunately, however, there is no "correct" size for a pit building because they vary tremendously in real life, so these super-detailed, simulated-brick, kits will fit in nicely with any size model raceway.

For our HO Rally Road we fitted a combination of Aurora track sections that will actually allow cars to pull off the track and into the pit lane during a race. A crossover section was added so that the pits for both lanes could be on the same side of the track. Another crossover section (they are only sold in pairs) must be added into the layout somewhere else to keep the two lanes separate.

We wanted a lap counter, but couldn't find a realistic place to put the scoreboard that actually shows the lap totals. Idea: build it into one of the pit buildings with the face of the counter as the roof of the building.

To add even more of that true-to-life detail, lights were installed around the pits to illuminate the area for "night" racing. With Atlas #807 lamp posts, this part was a snap. These light up through a tiny bulb, just like the real thing. All we had to do was drill a hole in the table for the wires from the lights to the power panel, then glue the base of each lamp post to the table with Plibond so they could be pried loose if need be.



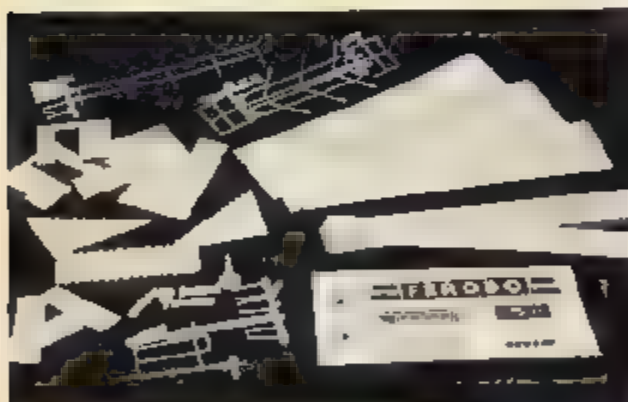
The pit parts include Aurora 5 #1525 service road turn offs, Corgi pit buildings, figures, one pit and one pair of turnoffs per lane



Connect the Aurora service road turn offs together and clip from the bottom



An Aurora crossover track is needed for each two lanes if you want all of the pits on the same side of the track



The Corgi pit buildings are plastic and as super-detailed as any model car.

These pits are simulated brick with each corner beveled at the factory to fit.



We left the back staircase off our Corgi pits, so the attaching tabs were cut away

There is quite a bit of flash at the edges of some pieces. Cut it off





The first step is to assemble side and rear then glue the divider walls and other end on



Roof is aligned by tabs, then glued in place.



Fit on the front walls and posts then the front deck before the posts dry



Top railings are the final touch



These are the parts of the staircase. With a little cutting it will fit on any wall

We decided to hide the Aurora top counter inside another Corgi part.



Trim away lugs inside rear walls



Cut off each small lug from both end panels. Glue the edge of the lap counter to the long lug on each end wall



Trim off 1-1/2" of right end wall. Save pieces.



Cut the lugs from the inside of the stairs. Glue one side of stairs to right side.



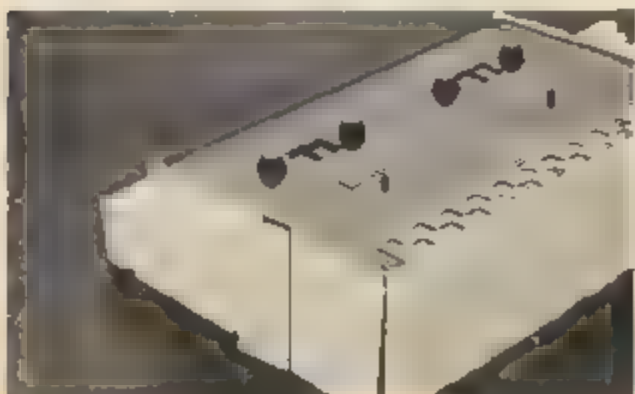
Shorten front wall and deck to fit, then glue. Cut and bevel rear wall to fit, then glue

Use the leftover part of the right wall and the rear wall to fill in the left side



Glue on stairs with bricks on inside

Glue end on stairs. measure width of pit





Mark off roof then cut to length and narrow to 1" width with a razor saw



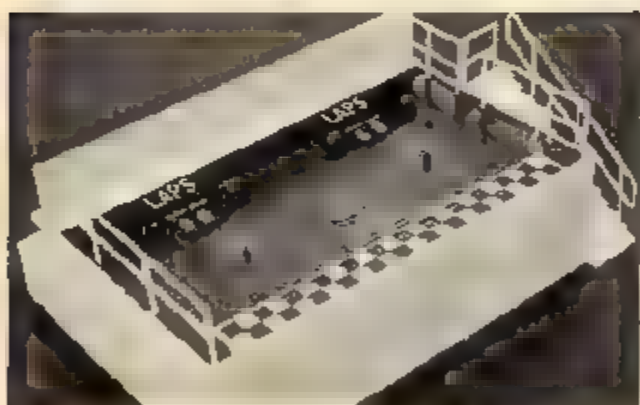
Glue narrowed roof to front edge of counter



Cut a section out of front railing to fit



Glue shortened front rail pieces together



Add the railings to sides and stairs only. The face of the Aurora lap counter is now the roof of the building. There is enough clearance beneath for wires.

Paint the "roof" and stairs flat black. Color doors and rails to suit. Note how the lap counter is hidden.



Use Ulrich's flat red to paint on the brick detail. Note that only the side of the brush is used to color tops of bricks, leaving the natural light gray color of plastic as "cement."

Staircase was left off of this one pit. Apply the ad decals furnished with the Corgi pit kits, then cover with Salvaset (from model railroad shop) so decals will "snuggle" in around bricks.

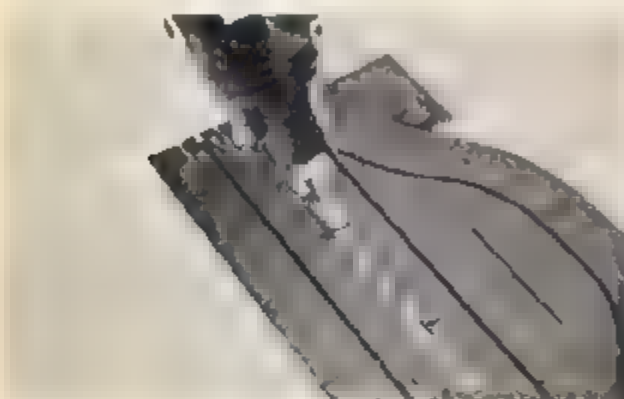




A few alterations to the pieces allow this Corgi pit building to do double duty as both a scenic structure and a lap counter



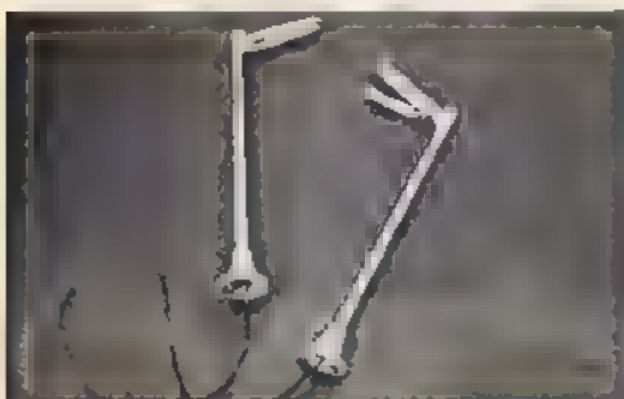
The Aurora Service road turnoffs have no provision for hold-down screws. Drill a 1/8" hole in the position shown here



Countersink the area around the hole so a #4 x 1/2" wood screw head is flush with surface of track. Use an old axle spacer between underside of track and table to keep the track from being dragged down by the screw



Corgi spectators, drivers, and officials add the live touch. Aurora #1525, #1524, and #1537 track sections are used. The "sand ng unit" track section for the Aurora lap counter is located beyond pits



#807 Atlas HO lightposts really will light! Each has a thin bulb and wires. Drill 1/8" hole in table for wires, glue posts over it.

Next month we'll wind up the HO Rally Road construction with hills, trees, and almost-wet-water.



The wires from each Atlas lamp post are extended to the S.P.S.T. (on-off) switch on the control panel as shown in last month's wiring diagram. Any model railroad shop should stock the Atlas #807 units. Track has been over-sprayed a light gray to simulate concrete



Rebel Anglia

A 17-year-old high school senior and a Chevy-powered Anglia are playing havoc with the East Coast B/Gas competition

Doug Coenen, a 17-year-old high school senior in Hampton, Virginia, spends his weekends at the drag strip and well he should. Doug is the driver of a B/Gas Anglia that he and his father campaign with notable success on the East Coast.

It all started when Doug and his father got their first taste of drag racing in Florida a couple of years ago. One car that really impressed them both was the Allen & Gary Anglia. After a little negotiating, the car became part of the Coenen family. Charlie Gary gave them some hints on engine building, 327 Chevy style, and showed Doug the finer points of driving.

Now billed as "Johnny Reb," the car has carried Doug to best marks of 10.23 seconds at 131.31 mph, both marks set at Richmond, Virginia. In addition, Doug has claimed wins at the NASCAR '66 Spring Nationals and Winter Nationals as well as an undefeated match race score.

And just in case anyone forgets Johnny Reb's breeding, there's a 14-foot parachute bearing the design of the Confederate flag.



By Phil Engledrum

THE KING OF THE OVAL

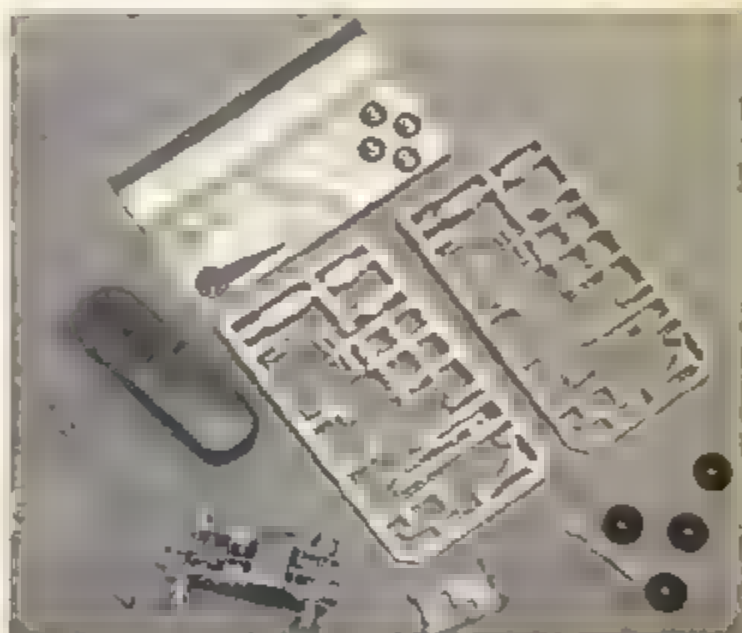
By
Robert
Schleicher

The Trevis-Meyer-Drake was the "big gun" at the brickyard, in '64.
Here's how to duplicate this famous racer — in HO scale!

Not all of the HO scale cars are of the simple ready-to-run variety. Atlas has four different kits of some pretty wild cars. Each features dozens of colored and chrome customizing parts like roll bars, external gas and oil tanks, exhausts, and others. These parts are almost worth the price of the kit alone, for use on other HO cars. The four kits include an Allard, a Ferrari GP car, a Mercedes 300SLR, and the Indy car on these pages. Any, or all of these will make a really different addition to your HO stable.

We chose one of the more "clean" Indy cars as a prototype for our model. Most should have two or more of the external oil tanks furnished with the kit. If you're not much interested in trying to match a full-size Indy car, then you can go wild with the various chrome parts and make an open-wheel custom from the kit. The assembly consists of mounting four tires on the wheels and installing two self-tapping screws to mount the body. The other parts in the kit are all extra details.

Surprise . . . there are kits in HO scale also. This 1964 vintage Indy racer is one of four Atlas car kits. The AJ's tires are an extra performance help.



The chassis comes pre-assembled. If you wish to use the AJ's silicon rear wheels and tires, pry the Atlas ones off.

The second wheel is often more difficult to remove than the first. Grip the axle with cutters, and pry against them to remove.





A dab of epoxy on each axle end will hold the AJ's wheels on the small Atlas axles.



The Atlas tires are larger than the AJ's, so we substituted a double pair of stock Aurora tires up front, to match the rears.

The lead weight from the Atlas adds extra traction to the rear tires. Weight will only fit in the position shown.



Drill four or five 1/16" holes in the side of the body at the position indicated here. These will be the opening for the exhaust.



Open the area between the holes and trim to a smooth, rectangular oval with an X-Acto knife.



Drill a single 1/16" hole on the back edge of the body to accept the pin on the Atlas exhaust pipe.





Glue pipe in place.



ALL of the rectangular tabs on the body sides should be trimmed away so they are flush with the body.

Sand the sides of the body with #600 wet-or-dry paper to remove any traces of scratches or molding marks.



An X-Acto battery powered drill can be used to grind away a small dent in the nose to simulate the vents on the late Indy cars.

Spray the body your favorite shade (this one is white) and, when dry, paint the area around the driver flat black.





The driver can be painted with a #00 brush and the chrome rollbar, rear nerf bar, gas caps, and steering arm glued on.



Numbers and stripes can be hand painted, or LetraSet numbers may be used. This car has decals from Renwal's 1/48 model.

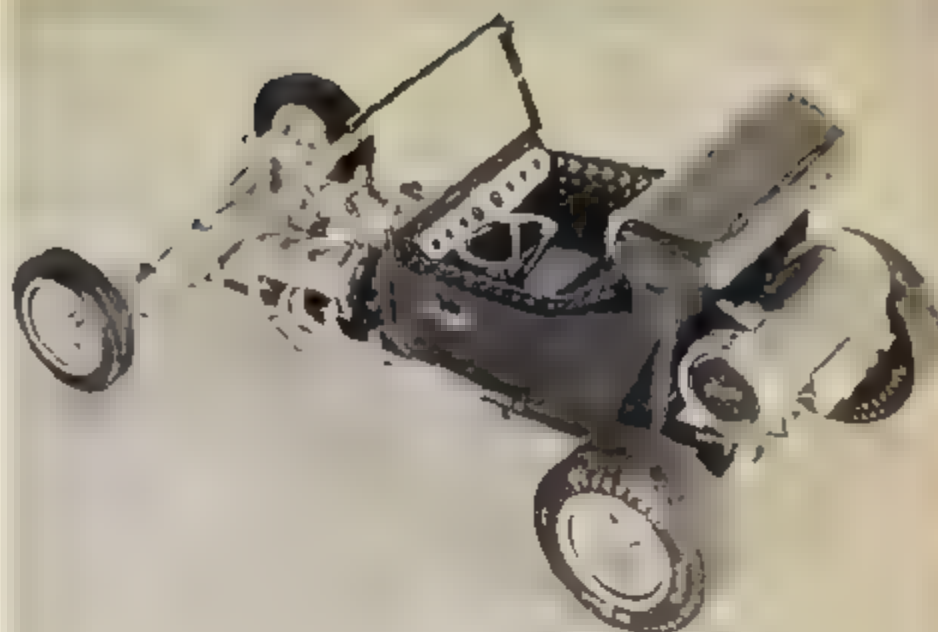


Mount the body to the chassis and the Indy car is complete. The numbers and stripes on this car match the ones on the 1964 "500" winner.





MODEL OF THE MONTH



Sixty hours of tender loving care went into Michael Warrick's beautiful 25 "T" machine, but we believe Mike will feel it was all worth it when we send him our \$25 Savings Bond for first place to his home at 852 East Chaplin St., in Morris, Illinois. Mike's sanitary roadster sports an engine that is fully wired, and complete with dip stick, fuel line pickups, spark plugs, and wire looms. The engine and fuel tank are from the Ala Kart kit. Exhaust and door handles were scrounged from the "King T." Front wheels formerly held up a '61 Buick wagon. Mike "scratched" the headrest from hales. The taillight on the reverse side is made from scratch also. The interior is flat black with painted buttons (and a nice juh too Mike!) and white corduroy mats. The body has eight coats of Beatnik Bandit Red, over a flawless body shell. Great Mike! Our Savings Bond is on the way to you. Congratulations!





If more police had "chase cars" like this one, there'd be a lot less law breaking going on! Jim

How does a '67 Corvair Monza Funny Car grab ya? It grabbed us! John McClohan, of Palo Alto, California, stirred his parts box, and came up with this outstanding model. John moved the rear wheel wells forward $\frac{3}{8}$ ". The blown "409" Chev uses an engine block and valve covers from a Revell '57 Chev. The blower assembly and air scoop is from Tony Nanczy's "22" Jr. Roadster kit, and of course, it's completely wired. A turbine supercharger is installed on the rear end. The



Seivers, of Lind, Washington, also put in 60 hours of time on this IMC '28 Ford. Front tires and mags, front and rear axles, and the radius rods are from the AMT Double Dragster. The rear slicks and mags are from Revell's Custom Car Parts. Two blown and injected Chrysler Hemis came from AMT. The traction bars are from the Revell '40 Willys. The roll cage, air scoop, Moon gas tank, steering wheel, and chute are from the good ol' spare parts box. If you don't have one yet, you must be brand new to model building! Anyway, the push/wheelie bar is scratched from copper tubing. The windscreen, grille, windshield, and windows are made from celluloid, tinted gold. Upholstery is red cord, trimmed with chrome striping tape. The paint is neo-tone, the top being 10 coats of AMT Metalflake Rootbeer, and the fenders 10 coats of Aster Gold. Then both sections were sprayed with three coats of AMT Clear Gloss. Jim is 14 years old. Good show Jim!

chassis is made from balsa; the floorboard and firewall is cardstock. Various kits (mainly '32 Ford by AMT) were used to make the front end. The interior equipment (bucket seat, safety equipment, chute, gear shift and linkage, and extra fuel tanks for the turbine supercharger) is all securely mounted to the floor. To top off his masterpiece, John shot on 5 coats of red metalflake and 5 coats of burgundy metalflake, by Pactra, over a silver underbase



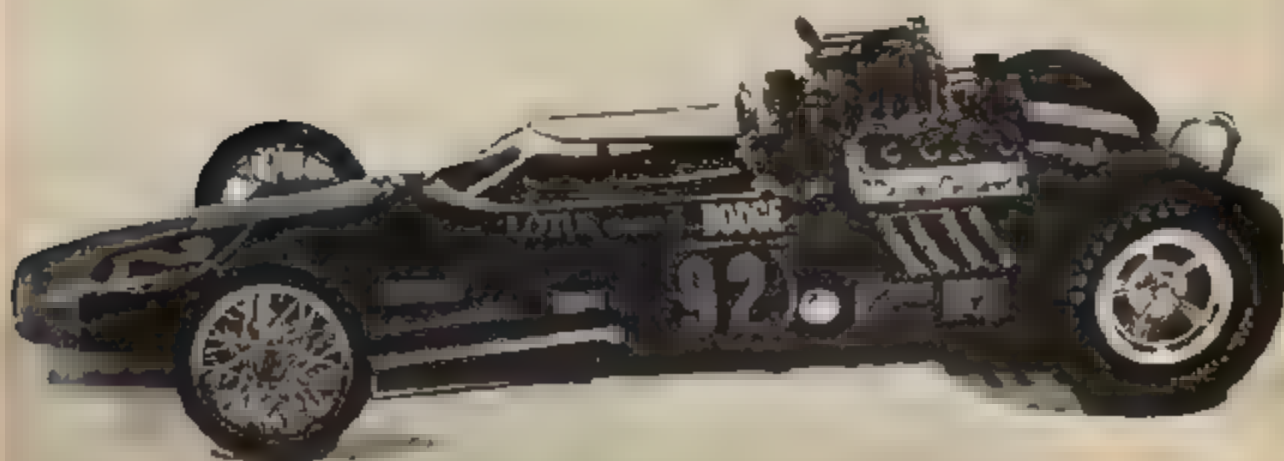
HOW TO ENTER OUR CONTEST

You can enter any kind of a model you like (train, plane, boat, car, etc.) so let your imagination run wild! Just send one or two sharp black and white (no color please, we can't use it) photographs of the model and a brief description of what you have done to it. Remember, other readers are interested in what you have done to your model so be specific when mentioning the parts that you used. Send to: Editor, MCS, 171 Barrington Place, West Los Angeles, California 90049. Sorry, we can't return photos.



Paul Santos, from New Bedford, Massachusetts, is a model builder, second to none, judging from this breathtaking 1916 Stutz Bearcat. He completely scratch built the car, and nothing was bought except brass, copper, and wood! Try that some time guys! It is complete down to the chassis bolts, engine, transmission, rear end, etc. The chassis, hood, seat backs, and fenders are all of brass. Tires are rubber, spoke wheels are wood, seats are real leather, and so is the trunk, which opens. The hood opens on piano hinges. The steering wheel, dash, and body are of maple. "Stutz" is engraved on each hub cap. The dash has all dials too! Engine detailing is as exciting as the rest of the car, including spark plugs, and oil and fuel lines. At the New York Auto Show recently, Saul won first, second, and third places with some of his other models. The Stutz was not entered. Saul is 40 years old and has been making models as a part time business for 12 years. Our hats are off to you, Saul. You're truly a master model-maker.

Bob Mottola, from Mt. Vernon, N.Y., breathed on a Lotus-Ford by AMT, and transformed it into this unusual car. The engine compartment is completely modified to accept a Dodge "Hemi" engine. The rear tire, axle, wheel assembly is from the AMT '67 Mercury Cougar. The front assembly is from the Wynn's Jammer. Finish is a glorious Metal Flake Green (7 coats) with a flat black interior. The seat is Root Beer. "Top drawer" Bob boy!





Here's a rod that brings back memories of the "good ol' days" and it comes from Germany! Ralph Wahl, a serviceman stationed overseas, reworked the AMT Fiat with custom parts from Revell. The engine is a wired Chrysler with Revell speed parts from Tony Nancy's dragster kit. The top portion of the rear was cut out. The body



color is AMT's Fire Orange (waxed and rubbed) with matching tinted orange windows. The interior is simply done up with flat black paint. The chassis and engine block got the same treatment. Front tires are Pirellis, mounted on American mags. The rear skins are Firestones with Halibrand deep-dish mags.



By its body, it's a '67 Vette; but the decal says Dodge, 'cause there's a bobbed Little Red Wagon chassis underneath and a 426 Hihorn injected Hemi for power. Single wheelie wheel was lifted from the MPC Mako Shark trailer. Rear slicks are from the Wynns' Charger and the wheels all around from a '66 Cyclone.

And who's responsible for this beautiful madness? John Granzella, of 4562 Gregory Way, Richmond, California, that's who! Outta sight, John!



TOYOTA CORONA



More powerful than a locomotive... the 90 horsepower Toyota Corona sedan is actually three times more powerful pound for pound than a 250,000 pound diesel locomotive! It's a sweet machine and the R/C version has captured the charm and dash of the real thing.

Here's a 1/15 scale R/C machine that's definitely out of the toy class! This one is for serious racing!

By George Siposs

Thanks to the industrious nature of the Japanese people, they have pulled themselves into the number two position in imported car sales in the U.S.A., right behind the ever-popular Volkswagen. However, in the scale world of radio controlled model cars, Japan is in a solid first place!

One of the reasons that the Japanese R/C models are enjoying such popularity is because of the high quality of the product. Another is the low price, and friends, you just *know* that those two features are seldom found in the same package!

The Toyota-Corona is a very successful automobile. It has a powerful 1.9 liter engine, very sporty lines and peppy performance. It put Toyota right behind Volkswagen in the world stand-

ings but now they have an even more appealing model, the Toyota Corona Hardtop. It is a lightweight version of the sedan, but has the same running components. Its looks have been improved by changing the body style to a two-door coupe. It is this two-door version which was chosen to be copied for a true 1/15 scale model by the Nichimo Company.

The R/C model is one of the best all-around values that we have seen in this line of merchandise. First of all, it has proportional steering. This, in case you are unfamiliar with R/C terminology, means that the car obeys your every command as far as steering goes. This was achieved by a most ingenious engineering breakthrough in

model car technology. For the sake of technical minded readers we should stop here for a moment and explain how it works.

When a car rounds a turn its outside wheels run faster than the inside ones. Now if we mount a motor on each front wheel and power it separately, then whichever motor is made to run faster will automatically power its corresponding wheel and this wheel now becomes the "outside" wheel in a turn. In other words one can execute a turn simply by making one or the other wheel rotate faster than the other. When the car is off the ground you can actually see one of the wheels running faster than the other, yet both wheels are pointing straight forward. Put the car on the floor however and whenever

you turn the steering wheel on the transmitter, the tiny Toyota makes left or right turns obediently. That's proportional steering.

There is a two speed switch on the bottom of the car. Use the SLOW setting for learning to operate the car. Switch it to HIGH when you are ready for thrilling races.

Although the instructions in the shipping container calls for "D" size batteries you will find that the only battery that will fit is the smaller "C" size. These batteries will last for about 20 minutes of uninterrupted running. If you are an enduro fan, simply change to new batteries and give the old ones a breather. I found that in an emergency, the batteries can be revitalized by putting them in a moderately warm oven for a half hour.

The hand-held remote control unit (transmitter) has a miniature steering wheel which is a real pleasure to operate. The smallest turn I was able to execute had a radius of less than 2 feet. Larger radius turns, or straight running can be accomplished by appropriate manipu-

lation of the steering wheel. You are the driver.

There is a master control switch on the transmitter which works in a sequence. Push it once and the car starts up. Push it again and the car stops. One more push starts it up, but in reverse while the next push stops the car again. And so it goes stop, forward, stop, reverse, stop forward, stop, reverse, etc.

There are several plastic pylons included with the car to enable you to set up an obstacle course. A torturous zig-zag obstacle course can be set up and timed runs made to determine the winner. Add ten seconds to your running time for each obstacle that was upset and five seconds for each obstacle touched.

Two cars can be raced simultaneously if you make sure that the two cars operate on different frequencies. The transmitting frequency is clearly marked on the shipping container. My unit operates on 27.120 megacycles. The other frequency is in the 40 MC range.

Some hints and tips for trouble free performance will probably not be wasted. A ways remove

the batteries from the car and transmitter when the car is put away for storage. When the car hits an obstacle while running and it stops, immediately turn the power off to avoid burning off the motors. Do not run the car in direct sunshine on a very hot day. Put a few drops of fine oil on the moving parts for every two hours of running time.

For the present, only a Toyota body is available for this car. With a little bit of sawing, filing and cementing, one could adapt a 1/20 scale Cox gas car body so as to have a variety of body styles for racing. Do not forget to attach racing numbers and decals to the body. They really help set the scene.

All in all, the Procon-Uni Corona is an excellent value at \$69.95 for anyone wishing to enter the R/C model car field with a car that is out of the toy stage. The car is sold through Aristo-Craft Distinctive Miniature, Dept. MCS 314 Fifth Ave., New York, N.Y. As I said at the beginning, high quality-low cost R/C cars are here and they are here to stay.



Attach the antenna to the car body, after you have familiarized yourself with the instructions.



Insert four "C" batteries into the battery compartment in the car. Make sure you understand and follow the polarity. It's explained in the instructions.

Install the 9 volt transistor battery in the transmitter. You are now ready for a quick ride.



Hold the transmitter in your left hand so your thumb can handle the control buttons.



TOYOTA-CORONA Specifications.
The full size car.

Price	\$1985.00
Wheelbase	95.3 inches
Track	50 inches
Overall Length	181.8 inches
Overall Width	61.8 inches
Curb Weight	2263 lbs.
Top Speed	87 mph
Turning circle	33 feet
Horsepower	90

The Proton R-C version, 1/15 scale

Price	\$69.95
From Aristo-Craft Distinctive Miniatures	
Wheelbase	6.3 inches
Track	3.3 inches
Overall length	10.7 inches
Overall width	4.1 inches
Total weight	1.8 lbs.
Top speed	3 ft./sec. (FAST) 1.71 ft./sec. (SLOW)
Turning circle	20 inches radius approx.
Motive Power	four 1.5 volt "C" batteries



Put the car on a smooth level surface and turn the SLOW and ON switches on. Ready? Go!



Negotiating the obstacle course is fun if you run against the clock.

Any way you look at it, R/C cars are just plain FUN.



SPEED & TECH

By CHRIS CHAN



MOTOR MONOPLY

Since I first stated that Mura motors were going to really put the pressure on West Coast amateur and pro rewinders, the situation has gotten completely out of hand! Ron Mura's super-jet rewound 16D and 26D Mabuchis are everywhere!

To add to the confusion, additional "silver" wire winds have also been placed on the market. This boosted the size of the Mura line to no less than a dozen 16D's.

The new "silver" wire is actually silver coated wire. It's now available in double #32, double #31, triple #32, and single #29. All run extremely strong and show signs of giving Mura even more widespread popularity.

The triple #32 really went out after amps and was slowed when the track was full of other hot winds. I was mentioning to the local Mura men that my favorite and fastest winds were short stack (20 to 15 plates) 66 of #28's, and they countered with offers of the latest Mura (still in the prototype stage) which is also a stubby. Apparently if Mura has to make fifty different winds to keep everyone happy they'll do it. But you pay for it.

MORE BODIES
Dynamic is making all the noise in the body biz nowadays. Jack Garcia and Lynn Fletcher are casting out new molds so fast that no one can keep up with them. The basic Dynamic concept in their bodies is to set up

their frames to really handle and then take a popular body style and stretch it to fit after chopping it down to make it handle. The end results aren't as bad as some would lead you to believe. Although current Dynamic offerings like the Chaparral 2F and M-rage (Group 7, not Wyler's) won't stand up to MESCA's rules they still maintain proper body lines and the appearance of a racing car. I personally would like to see a bit closer dimensions here and there, but Dynamic has a far better solution to a handling body than the local butchers with their chopped up shells.

Aside from the deviation from true scale, the Dynamic bodies look and handle exceptionally well. Their low profile and wide stance are complemented by .015" (approx.) and Lynn's fantastic attention to detail.

One point that should be of some help is to use small squares of the clear plastic to reinforce the body walls. I use either B-tyrate airplane cement or Pactra "Body Patch" to secure the 1/2-1/4" squares to the outside of the body where the pins, or whatever, go through. They're almost undetectable, and give added miles to the fragile shell. New releases are sports cars like previous models, with a McLaren Mk III and a Ferrari P4 Daytona-style coupe. 1:32 scale boosters will also get a taste of "handling" bodies too! In the near future a Ferrari and a Chap 2F will appear.

BACK TO THE DRAWING BOARD

The plate frame that worked so well on a few tracks is still meeting stiff competition from multi-rod chassis on a lot of courses. It seems that it is far easier to alter the construction of a rod frame by changing angles and what have you to get the proper flex for a certain type of track. At the point where plate or pan frames are so commonplace that most builders have enough experience with them, the rods and the plates are going to clash head-on, and I would expect the plates to win.

CONTROLLER AILMENTS

The last 24 enduro I entered left me with a very badly snuffed Cox Mark 5 7-1/2 ohm control. The last time I hooked it up nothing happened besides endless amounts of smoke billowing around. It has suddenly become popular to take the largest size wire and use it for control cable and use double, triple, or Cox Mark 7-type fast wires in an effort to lower controller resistance and increase controller reliability. My modified Cox was set up just this way with double fuse wires and heavy cable for track hook-up. Unfortunately this left only the resistor, overworked from close to 4-1/2 hours of non-stop racing, to give out. But resistors, while not as cheap as fuse wires, should be replaced rather than thrown out with the old control.

The Cox-MRC conversion is getting very big these days. For \$2.00 you can get a brand new 5, 7-1/2, 10, or 15 ohm taper wound resistor from MRC. These resistors fit right into the Cox interior layout with no trouble at all and the 5 and 7-1/2 jobs offer ohm ratings that Cox doesn't sell separately yet. The 7-1/2 ohm unit in my Cox Mark 5 hasn't shown any signs of wear or failure in the 50 or so hours I've already logged on it.

MORE POWER TO YOU

While Bob Rule of Champion (of Chamblee) was visiting Los Angeles, I got a chance to sample several sets of the new shimmed Arco's. The super strength of these magnets really allows you to go wild on winds without burnouts. So powerful are the magnets that they will cut the motor RPM down drastically. For this reason it is not recommended that they be used in mild rewinds or stock motors, they just won't let them rev up. If you rewind your own cans, use a slight increase in commutator timing to pick up the lost revs. Taking further advantage of the super magnets, remove a few armature laminations. This will lower your motor's resistance (winding by turns) yet will not affect torque, and will make static balancing alone adequate.



FUNNY HEARSE!

Our favorite MC & S Ghoul presents
"a hearse of another color"

By Phil W. Ilen

Where do you go when you get up in the morning and drive a funeral coach? Answer: From bed to hearse! (Get it? From bad to worse.)

What do you have when you paint a funeral car green? Answer: A hearse of a different color. Stop groaning, and pay attention now. Then there was the undertaker who claimed business was picking up since he started a lay away plan.

Sorry to do this to you, but for years now I've been waiting for a spot to use my hearse jokes and I finally have it. Thanks to Dave Yatsko.

Dave is a very serious modeler who likes to do funny things with cars. When I told him I was looking for something different in the way of funny cars, he promptly whipped up the Midnight Express.

The Yatsko imagination figured it would be pretty funny to see a Cadillac funeral wagon doing wheelies down the local drag way, so he set about making a scaled-down version of the crazy coach in his mind.

The body comes from a '67 hearse by Jo Han. A frame was scratch built using wooden doweling painted flat black. Front and rear ends are made up of Revell custom car parts. Wheels come from the same source.

An engine was taken from the Don Garlits Wynns Jammer rail kit by AMT and fine detailing work added by the Yatsko hand. Wiring and fuel lines are made from grain of wheat lamp wire. They really add that touch of realism. Headers come from the Revell Anglia.

At first the speedy coffin carrier was going to be named the "Beer Wagon," but "Midnight Express" was settled upon.

Letters are of the rub-on variety, rather than decals. They had to be put on one at a time.

A handy thing for the race scene is the crazy bronze "tool box" with the silver handles. There's a rumor going around that the driver sleeps in there and that they pull the stake out of his heart for big meets. At night only, of course.

If you would like to put some fresh blood in your car collection and really get a head, take a tip from good old Dave Yatsko. He really knows his body work!

Well, so long for now, I'd better be . . . shoving off!

PARTS LIST

Jo Han '67 Hearse
Revell front and rear ends from the Revell Custom Car Parts (C-1132)
Revell wheels from the Revell Custom Car Parts collection
AMT engine, from the Don Garlits "Wynns Jammer" rail kit
Chassis — scratchbuilt from wood dowel rod.
Revell headers from the Anglia kit
Revell steering assembly from the Revell Custom Car Parts (C-1132)

Wiring really makes an engine. Dave Yatsko finds that grain of wheat lamp wire tends to stay where it's put.





Steering assembly is from Revell custom car parts



Parachute pull ring was fashioned from part of a ball point pen spring



Headers are from a Revell Anglia. Note how fuel lines have been fashioned from the same grain of wheat wire used for wiring



The driver sits in front of the big blown Hemi.

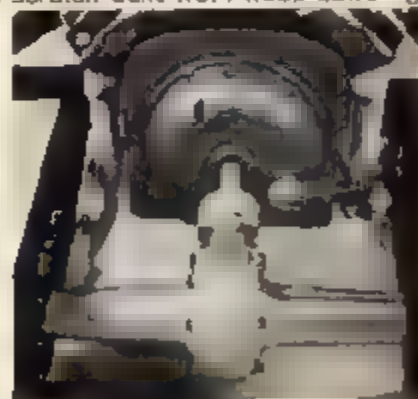


Dave knows that detail is important from any angle, so he added clutch linkage.



Photos by Phil Wilken

Framework was scratch built from wood doweling



Crazy wheeled "tool box" gives driver a place to sleep between runs.

From any angle t's wild. How about a matching limousine for speedy funerals?



WINNEERS NAMED IN GIANT CONTEST

Here are the winning cars that you've been waiting to see!



David C. Goetz, 20, of 324 N Sparks Street, Burbank, has been awarded first place in the Senior Division National Finals of the 1967 Fisher Body Craftsman's Guild model car competition. He was presented with a \$5,000 university scholarship for his winning entry during ceremonies at the national awards banquet held at Fisher Body general offices in Warren, Michigan. Nineteen young craftsmen received a total of \$39,000 in university scholarships from Mr. Kenneth N. Scott, General Manager of Fisher Body and a vice president of General Motors.

Nineteen young craftsmen have been awarded university scholarships totaling \$39,000 in the finals of the 1967 Fisher Body Craftsman's Guild model car competition. The top winners are David C. Goetz, 20, of 324 N Sparks Street, Burbank, California, and John F. Faust, 15, of Route 6, Anderson, Indiana.

Both boys received the top award of a \$5,000 scholarship. Goetz in the senior division, boys 16 through 20, and Faust in the junior division of the competition, boys 11 through 15.

The announcement of the top national scholarship winners was made at the National Awards Banquet held at Fisher Body General Offices in Warren, Michigan. Mr. Kenneth N. Scott, general manager of Fisher Body and a vice president of

Goetz, a student at the Art Center College of Design in Los Angeles, had his entry selected for top state and regional honors for California in judging held earlier this month. As regional winner — he was on hand at the banquet to receive his scholarship award.

His aerodynamically inspired coupe offers many unique features designed to give his model high performance while it also insures the safety of the occupant. The front wheel drive package allows responsive maneuverability and stability while the passenger compartment is engineered with a controlled crush rate.

General Motors, announced the awards. Dr. Wendel H. Pierce, executive director of the Education Commission of the States, delivered the banquet address.

The second place scholarships of \$4,000 were won by Stephen M. Paulson, 19, of Ridge Road, Upton, Mass. (senior division) and Roger F. Bartlett, 15, of 161 Sabo, Mansfield, Ohio (junior division). The third place \$3,000 scholarships went to Jerome A. Szytek, 20, of Whiting, Indiana (senior division) and Jerry W. Weber, 15, of 2119 Lulu, Wichita, Kansas (junior division). Fourth place honors, and a \$2,000 scholarship went to Ronald E. Pietruska, 18, of 12 Vassar Avenue, Stamford, Conn., (senior division) and David G. Catalano, 13, of 447 Mapleview, Buffalo, New York.

In addition to these top winners, eleven \$1,000 styling scholarships were awarded on the basis of design excellence. The winners are: Robert W. Lawhn II, 21, of 7067 Reed Road, Houston, Texas; Bruce E. Claypool, 18, of 4207 Alta Road, Los Angeles, California; Allen K. Hess, 21, of 1779 Kensington Avenue, Salt Lake City, Utah; James W. Stengle, 18, of 1101 E. Maple, Enid, Oklahoma; George E. Stosky, 16, of 264 Idylwild, N.E., Warren, Ohio; Conrad P. Skibinski, 18, of 2130 Memorial Avenue, S. W., Roanoke, Va.; Larry K. Eby, 19, of 10208 S. E. French Rd., Vancouver, Washington; Dennis A. Little, 20, of 1949 Caronia Drive, Lyndhurst, Ohio; Spencer L. Mackay, 17, of 18207 Valley Vista Blvd., Tarzana, California; and Terry P. Graboski, 19, of 1054 N. W. 115th Street, Miami, Florida.

The eleventh winner is Robert Kohler, 18, from Geneva, Switzerland. Kohler had his model judged

second best in the G.M. Suisse competition. Because of the exceptional imagination and ingenuity in his model, the entry was chosen to receive one of the styling awards based on design excellence.

There are four Guild competitions within General Motors Overseas Operations. The top winners from the Vauxhall competition in the United Kingdom: Adam Opel in West Germany, G. M. Suisse in Switzerland and G.M. Holden in Australia visit the United States during the National Guild Convention each year.

Each year the Craftsman's Guild offers 1,078 cash awards and university scholarships totaling \$117,000. Guildsmen receiving scholarship are free to attend the school of their choice and pursue any course of instruction.

To date, more than \$2.5 million has been awarded to nearly 10 million youths.

John F. Faust, 15, of Route 6, Anderson, Indiana has been awarded first place in the Junior Division national finals. Faust was presented with a \$5,000 university scholarship for his winning entry.

Faust, a student at Lapel High School in Lapel, Indiana is a member of the Fisher Body Craftsman's Guild Club sponsored by Deico-Remy Division in Anderson. The club is under the direction of Jack Dinan. Faust has been a winner in four previous Guild competitions. In 1963 and 1964, his entries received an honor-

able mention awards. His 1965 model was chosen for third state honors and his 1966 entry took first state and regional honors for Indiana. His 1968 model went on to win one of the ten \$1,000 styling scholarships awarded on the basis of design excellence.

His model has a low profile with gracefully flowing lines. The car has a cantilevered top and retractable headlights. The young designer estimates he spent over 500 hours designing and building his winning model.



Stephen M. Paulson, 19, of Ridge Road, Upton, Massachusetts has been awarded second place in the Senior Division national finals. Paulson was presented with a \$4,000 university scholarship.

Paulson's winning entry is a low silhouette asymmetrically designed car. The model features a rear engine design, can accommodate two passengers and sits on three wheels. The spruce blue is accentuated by a wrap around windshield finished in black.



Roger F. Bartlett, 15, of 160 Sabo, Mansfield, Ohio, has been awarded second place in the Junior Division national finals. He was presented with a \$4,000 university scholarship for his winning entry.

Bartlett is a student at Madison Senior High School and is a member of the Spanish Honor Society and the National Junior Honor Society. In addition, he is a member of the Mansfield Fisher Body Craftsman's Guild Club which is under the direction of Fred W. Moritz at the local plant.

The young designer estimates that he spent over 400 hours designing and building his model. The two door coupe features a unique sports car design with a rear engine, retractable headlights, electrically operated doors, hood trunk and a partially reclined seating arrangement for passengers.



Jerome A. Svitek, 20, of 2522 White Oak Avenue, Whiting, Indiana has been awarded third place in the Senior Division national finals. Svitek was presented with a \$3,000 university scholarship for his winning entry.

Svitek, a student at St. Charles Seminary in Celina, Ohio, has been a winner in three previous Guild competitions. His 1964 entry received an honorable mention, in 1965 he was a second state and last year his model was in a tie for top state and regional honors in Indiana.

The winning model is a four door sedan designed to be a highway cruiser. It features a cantilevered top, rear view telescreen, an extra large luggage area and a unique wheel design. The young engineer, who plans a career as a priest in the Society of the Precious Blood, estimates he spent over 800 hours designing and building his winning entry.



Jerry W. Weber, 15, of 2119 Lulu, Wichita, Kansas has been awarded third place in Junior Division national finals. He was presented with a \$3,000 university scholarship.

Weber, who will be a student at Wichita High School South this fall, plans to pursue a career in industrial design. Last year, his entry took top state honors for Kansas and went on to be named regional winner for the four state region of Kansas, Nebraska, Oklahoma and Arkansas.

His sleek model is a two door, two passenger sports hardtop. With its cantilevered top, the car offers maximum visibility for driver and passengers. The rectangular headlights blend with the sculptured hood design and gives the car a low silhouette. The youthful designer estimates that he spent over 400 hours designing and building his winning entry.



Ronald E. Pietruska, 18, of 12 Vassar Avenue, Stamford, Connecticut, has been awarded fourth place in the Senior Division national finals. Pietruska was presented with a \$2,000 university scholarship.

His entry features a unique two-passenger design. It has a rear engine, front wheel drive and rear seating. The model has three wheels with the rear wheel being a wide stabilizing wheel. The rear turning signals are located on the side of the car and braking lights are on the rear bumper.



David G. Catalano, 13, of 447 Mapleview, Buffalo, New York, has been awarded fourth place in the Junior Division national finals. Catalano was presented with a \$2,000 university scholarship for his winning entry.

Catalano, who will be a student at Bishop Neumann High School this fall, has been a winner in previous Guild competitions. In 1965, his model took first state and regional honors and in 1966, his entry won third place state award.

The young designer estimates that he spent over 300 hours designing and building his model. The car features engine air intakes, a unique pin striping and a cantilevered top.



Bruce E. Claypool, 16, of 4207 Alla Road, Los Angeles, Calif., has won a \$1,000 styling scholarship in the finals of the 1967 Fisher Body Craftsman's Guild model car competition. Claypool's model is a tropical yellow futuristic sports coupe designed for two passengers. The young designer spent over 600 hours working on the entry.

Claypool will enter the Art Center College in Los Angeles this fall. His futuristic two-passenger vehicle offers a unique view of a luxury sports car. With its low silhouette, the car features an opaque projector to give the driver unobstructed rear vision, parallel doors that open in conjunction with the top and new headlight design that has the light recessed into the body and shining through plastic that conforms to the body shape.



Robert Kohler, 19, of 48 Rue Du 31 Decembre, Geneva, Switzerland, has won a \$1,000 styling scholarship in the finals of the 1967 Fisher Body Craftsman's Guild model car competition held in the United States. Kohler's model is a two-passenger roadster offering a low sporty profile that is accentuated by retractable headlights, a finished interior and gracefully contoured body design.

Kohler plans to become an architect and will enter the Institute of Technology at the University of Lausanne this fall.

His two-passenger roadster offers a low sporty profile that is accentuated by retractable headlights, a finished interior and gracefully contoured body design.

The interior features strato bucket seats, angled side windows and an extended steering column.



George E. Stosky, 16, of 264 Idywild St., N. E., Warren, Michigan, has won a \$1,000 styling scholarship in the finals.

His entry is an aerodynamically designed var-tracked sports coupe. The car features a rear engine, extra wide tires and a passenger compartment for three. To enter the car, the front of the top raises and slides forward.

The low profile of the car is accentuated by the cantilevered top and sloping contour of the hood. The narrow pillar supporting the roof allows maximum visibility while the chrome treatment is simple yet functional.



Terry P. Graboski, 19, of 1054 N. W. 115 Street, Miami, Florida, has been awarded a \$1,000 university scholarship in the national finals. His model was one of eleven selected to receive the styling award for excellence in design.

In addition to the unusual tapered shape, Terry's model car featured a louvered rear deck to permit cooling of both the electric motor and passenger compartment. His design also suggested that the louvers contain solar cells to provide energy for the motor. The young designer spent about 500 hours planning and building his prize-winning entry.

Terry, who won a previous Guild award, is a student at Miami's Dade Junior College. His ambition is to become a commercial artist.



Allen K. Hess, 21, of 1779 Kensington Avenue, Salt Lake City, Utah, has won a \$1,000 university scholarship in the national finals.

Allen's model car was designed with sweeping lines to place the emphasis on aerodynamic flow. As a safety feature, his design included water-filled bumpers both front and rear.

Allen, who won three previous Guild awards, is a student at the University of Utah. He expects to graduate in 1969.



Conrad P. Skibinski, 18, of 2130 Memorial Avenue, Roanoke, Virginia, has been awarded a \$1,000 university scholarship in the national finals.

Conrad's model was designed with sweeping lines to place the emphasis on aerodynamic flow. It features a sloping hood and rear-mounted engine. The young designer spent about 450 hours planning and building his prize-winning model.

Conrad, who won three previous Guild awards, is a student at Virginia Western Community College in Roanoke. He is planning on a career as an architect.



Spencer L. Mackay, 17 of 1207 Valley Vista Blvd. Tarzana, Calif., has won a \$1,000 styling scholarship in the finals.

Mackay is a student at Reseda High School and is planning a career in industrial design. Last year his entry won top state and regional honors in the Junior division for California, while this year's entry received an honorable mention award. His model is an ivory sports car entered in the open category of the competition. It features flaring side panels, wrap around taillights and has a graceful sloping contour.

Dennis A. Little, 20, of 1949 Caronia Drive, Lyndhurst, Ohio, has won a \$1,000 styling scholarship in the finals.

The young designer has been a winner in two previous Guild competitions. His 1965 and 1966 entries received honorable mention awards of \$25. This year's entry received third state honors in the senior division of the regional judging held earlier this month, but based on the excellence in design, it went on to be selected for one of the ten \$1,000 styling awards.

Robert W. Lawhn, 20, of 7067 Reed Road in Houston, Texas, has been awarded a \$1,000 university scholarship.

Robert's model was designed with sweeping lines to place the emphasis on aerodynamic flow. It featured a rear-mounted engine, narrow front wheel tread, and radar system for rear vision. The young designer spent about 500 hours planning and building his prize-winning entry.

Robert, who won five previous Guild awards, is a student at the University of St. Thomas in Houston. This fall he will enter his senior year in pursuit of a career in physics.

Larry K. Eby, 19, of 10208 S. E. French Road, Vancouver, Washington, has been awarded a \$1,000 university scholarship.

Larry's model was designed with sweeping lines to place the emphasis on aerodynamic flow. It features an air scoop extending to the front bumper and a unique air shield to replace conventional windshield wipers.

Larry, who won five previous Guild awards, has been a student at Clark Junior College in Vancouver. This fall he plans to attend the Art Center College of Design in California and study to become an industrial designer.

James W. Stengle, 18, of 1011 E. Maple, Enid, Oklahoma, has been awarded a \$1,000 university scholarship in the national finals.

James' model was designed with sweeping lines to place the emphasis on aerodynamic flow. It featured a turbine engine mounted in the rear. The young designer spent approximately 200 hours planning and building his prize-winning entry.

James, who won two previous Guild awards, is a recent graduate of Enid High School. He plans to enter Oklahoma State University this fall to study mechanical or design engineering.



Sun, Sea, and Sails

by George G. Siposs

During a race the R/C sailboats "teck" around a marker buoy. All realistic maneuvers are possible with modern equipment.

"Salty Siposs" guides you through storm torn seas, fraught with peril, and leads you to a sheltered cove where you can study...

There is a moderate breeze over the lake and the sun beats down mercilessly. You are sitting quietly in your tiny rowboat, minding your business, watching your fishing line. Suddenly a graceful sailboat looms up from nowhere, heeling over gracefully. You do a "double-take," your mouth hanging open in amazement. As you watch, it "tacks" and turns just like the real thing but . . . it is a model boat! You can plainly see its

rudder guide it through turns and its mainsail, being adjusted once in awhile to match the wind conditions. It is a miniature sailboat, there is no doubt. But what invisible power guides it as skillfully as the best Olympic racing yawls?

You have just seen a radio controlled model sailboat. And sailing promises to be the most graceful hobby to hit the scene in the past few years.

Ever since man has dis-

covered that it is fun to build and run small scale models of real cars and boats, it has been their dream to be able to control these boats and cars from a distance. Model sailboats have been built for many years but at best, their sails and rudders could only be adjusted prior to the run or some sort of ingenious device had to be employed to guide the boat in a more or less straight line.

Along came radio control and

immediately the hobbyists saw a chance to make their dream a reality. Different types of radio control equipment have been tried with varying amounts of success. Today, the degree of sophistication is such that one can duplicate any kind of sailing maneuver under complete control. To understand what kinds of maneuvers are employed in sailing we should first discuss the theory of sailing in very simple terms.

A sailboat derives its motive power from the wind hitting the sails at an angle and glancing off backwards. The flat extension below the boat prevents it from slipping sideways in the water and actually forces the hull to run forward. Since the wind direction may come from somewhere just off the bow it is possible to sail at an angle toward the source of the wind. This is the hardest fact for landlubbers to understand. A sailboat does not always run before the wind. It may advance in a zig zag fashion towards the wind. For instance if you are on the California coast and the wind blows from Hawaii, you first steer a course towards the North West and then change to a South Westerly course. Repeat this often and you will eventually arrive in Hawaii.

The last minute adjustments of sails and radio gear are most important for trouble free performance



An assistant launches the boat while its owner handles the transmitter

Zig-zagging in this manner is called "tacking" by sailors. It goes without saying that, if the wind is behind you it will push you straight forward.

Model sailboats are built along the same lines as their full scale counterparts. Their hull shape is identical and their sails are rigged in the same fashion. There is a heavy ballast in their keel so that it is impossible to

capsize them. All we need now is radio equipment that commands small electric motors in the boat to turn the rudder or adjust the sails. Enter proportional radio control servos.

Proportional radio control simply means that if you move a lever in the transmitter to the right 1/4 inch, a small motor (called servo) in the boat will turn the rudder exactly 1/4 inch to the right. Move it 3/8 inch to the left and the servo will repeat the same movement in the boat. In this manner, if you have one control lever on the transmitter for the rudder and another one for the sails you can control the movements of the boat just as if you were sitting in the cockpit yourself.

Just like in any other hobby, you can go as inexpensive or as expensive as you wish. You can build a boat hull from scrap pieces of wood and have your mother sew up the sails for you or you can start with a kit. Dumas Boats of Tucson, Arizona, have kits for exact replicas of real sailing boats starting in the \$20-\$30 range. Model Yachts Corp. of Newport Beach, Calif. has a kit for 1/12 scale model of the internationally famous 12-meter class boats. Prices





Close-up of a hull illustrates the location of the servos and receiver. This boat is 6 feet long and weighs close to 40 pounds.



The number on the sail indicates the serial number of the craft. This is common practice with full size boats. R/C equipment by Aquatronic.

The hand held transmitter has a knob for rudder and a lever for sail control.



A "STAR" class sailboat produced in kit form by Dumas Boats in Tucson, Arizona.

Several pounds of lead ballast in the keel prevent model boats from capsizing.



start at \$295. Finished boats can also be obtained from this company complete with radio for \$795.

New what about radio? Here again you can start with an inexpensive set but sailboats require much more power in the servos than model airplanes. It is impossible to obtain satisfactory performance from "Escapee Type" or "Gallop and Ghost" type model airplane actuators. You must have servos.

Multi channel proportional control servo equipment is fairly expensive but it will last you a life time. For my money, the most suitable equipment for sailboats is manufactured by the J. T. Goode Co., 894 W. 18th Street, Costa Mesa, Calif. This assembly consists of two servos, each capable of pulling a 10 pound weight, and will handle the largest sails, a transmitter, receiver and battery charging panel.

The antenna on the boat is usually doing double duty as one of the mast guy wires. The servos are mounted inside the fiberglass hull in a watertight compartment. Batteries are quite large because weight does not have to be saved here. There is lead ballast in the keel. Sails are usually made of white dacron

Principal suppliers of model boats parts and R/C

Aristo Craft
314 Fifth Ave.
New York, N.Y.

Dumas Boats
P.O. Box 6312
Tucson, Arizona. 85716

Model Yachts Corp.
2831 Bayshore Drive
Newport Beach, Calif.
■■■■■

J. T. Goode Co.
894 W. 18th Street
Costa Mesa, Calif.

R/C Model Sail Yachts
Box 3134
Burbank, Calif.



A friendly practice on Newport Bay in California. Notice kiddy kart for boat transport

plastic. Most owners build a cradle for the boats to hold them upright when out of the water. The cradle and boat are carried to the water on a two wheeled trolley or cart.

A model yacht may weigh over 30 pounds and measure 6 feet in length with a six foot mast. A majestic sight believe me!

Races are conducted just like the real thing. They have a timed start, a triangular course with downwind and upwind legs, marker buoys . . . the works. This is truly a sport for the sophisticated hobbyist. Land Ho, mate . . . man the X-Acto knives . . . batten down the hatches . . . here come the R/C model yachts!

Sun, sea and a honey blonde . . . typical summer scene in sunny California





DETAIL FOR REAL

By Don Emmons

FINE WIRE SPRINGS:



An electrical cord is a good source of very fine gauge wire. Cut a piece about 3 or 4 inches long.



Using a heavier wire, hold the two wires together and wrap the fine wire around the larger



When the coil is the length you need, carefully push it off the end of the wire



You now have a spring that can be used in many different ways. You can cut it to the length needed



This small coil spring is used in the throttle mechanism. This is an ideal place to use the spring for the ultimate in super detailing



A great many types of cars use springs on the carburetion systems. Here a long spring fits between carburetors.

TAILLIGHT DETAIL



To give red plastic taillights more depth and to make them look real, paint the back side with silver paint



Painted lenses reflect the light much better. A plain red lens is transparent and looks unrealistic on the car.



Silver paint applied to the back side of the Monkeamobile lights gives the "for real" look. Large units like these must have the paint treatment before installing them.



Small all chrome taillight units should have the area that represents the red lenses carefully painted with Candy Red.



It would be unthinkable to install these tall lights without painting them.



All chrome tail lights on the sports car have also been painted. Can you imagine what they would look like if we left them plain?

AMBER TURN SIGNALS:



Mix a drop of orange paint with flat white. Keep mixing and stirring until you have the proper shade of Amber.



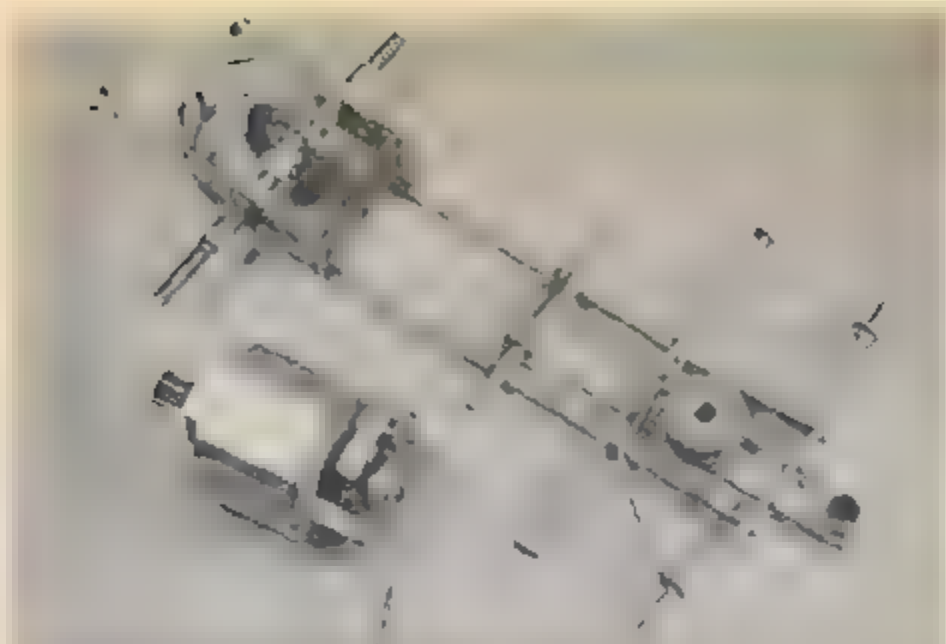
Paint chrome rings around edge of turn lights and let dry. Now give the lenses a good coat of Amber.



Amber turn signals on our Corvette supplies the finishing touch.



Lights that are cast into the bumper unit can be painted in a like manner. Work carefully to apply the amber color just to the lens portion.



The quick change chassis, this one for a Pittcan, offers fast removal of motors in addition to good handling.

THE "Quick Change" CHASSIS

Great for motor testing or those fast pit stops, this easy-to-build chassis offers yet another advantage -- the ability to win!

By Chris Chen

The quick-change slot frame is a triple-purpose threat. Because of the method used in motor mounting, it's ideal for enduro fans, motor testing, and even short sprints.

The idea is to let the motor "cradle" in the frame so that only a Cox-style clip is necessary to keep it in place. For long enduros, if you're unsure of motor life, this will hold pit stop times to a minimum. It's also great for testing out new motors while the time is clicking away.

By using one chassis for all of the motors you can get a fairly good motor comparison.

For the sprints, the motor is

held in with screws to insure alignment in even the roughest racing. The best advantage of the quick-change is that the front motor bracket, left out of most frames, gives the chassis much more resistance to tweaking.

The chassis is constructed out of 1/16" or 3/32" rod. Although it makes no difference if you use "pin" wheels or a solid front axle, the drop axle was chosen. This is a highly controversial subject so I feel it is better left for the individual driver to decide, rather than to recommend one way or the other.

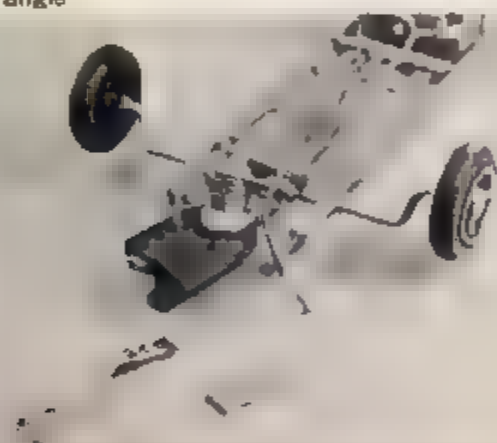
Brackets used in the photos are Kaskit. The modification is

just the removal of the top of the motor bearing hole to allow vertical access. The result of the modification is a very weak bracket, so additional rod is used to reinforce it. Long axle tubes also give it added strength to resist crack up damage. Gears and the pickup are both Cox. Oddly, to this date, no one has really commented on how popular and excellent the Cox guide is. Besides keeping the car securely slotted, it also fits the quick-change theme with its pop-in-pop-out design. Wheels and tires are Rigger Minis, with rears as small as legal. This brings them to 3/4" for CMRA and Revell Raceways competition.



To get that motor out in a hurry, the top half of the bearing hole on this Russkit bracket is removed. Set up for sprint races the motor is now held in with two self tapping screws instead of the Cox-type clip

Cox's clever quick-change guide is a must for the handling and "pop apart" nature of the car. The little brass shim holds the lead wire in place in the slot and the superflex brush pops in and out. If the brush flops around a bit, tweak the copper top portion at a slight angle

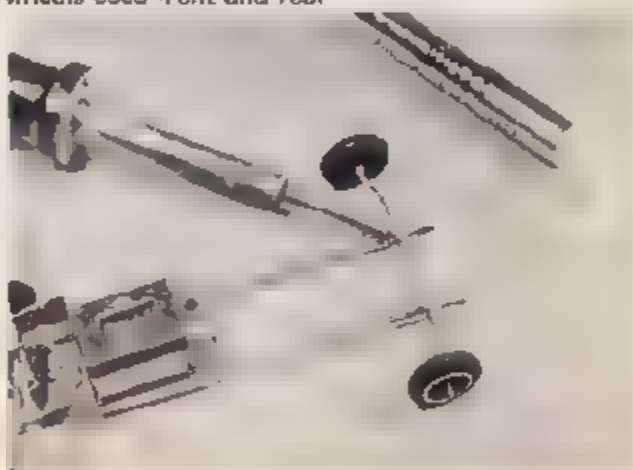


A finished quick-change frame shows how a rod is used to "cradle" the motor in position. The chassis sits just a hair under 1/16" off the ground and uses 3/4" diameter by 5/8" width rear tires



This is a Hemi quick change for a Revell Ferrari Dino. Note that the bracket bracing rod also doubles as the tailpipe bar for the Ferrari's exhaust. The frame is a lightweight of 3/32" tubing

The "pin" wheel front end is secured to the frame with Monza silver solder on the Hemi powered quick-change. R ggen makes the fine black anodized wheels used front and rear



For the chassis builder that would rather buy a ready-to-solder, quick-change motor bracket, this Simco unit should be just the thing. It would still be better if somehow the front and rear pieces are attached with a brass tube or rod



MC&S GOES TO THE "NATS"

When you fly in the National Model Airplane Championships, you've arrived! This is the BIG TIME!



The entrants sweated beneath the deep blue sky that the Blue Angels played in. Winning's never easy—a fact that Engineer Bruce Chandler, shown here working on his stubborn GMQ engine, can testify to. He spent the better part of an hour trying to fire it up, trying less fuel, more fuel, oil-sealing, then another, but to no avail. It just wouldn't run for more than a few seconds. "It's fun—fun, FUN!" Chandler shouted in mock fury. Then he picked up his aircraft and strode back to the sidelines, followed by his disappointed 12-year-old son. Model car racers know this feeling.

Out of the blue came over 900 contestants representing all 50 states and several foreign countries. They converged on the Naval Air Station at Los Alamitos, California for the week-long 36th Annual National Model Airplane Championships.

Even with all these people in attendance, it turned out to be an interservice rivalry for the attention of the public. The Navy had a recruiting campaign going at all times, and their crack "Blue Angel" Flight Demonstration team to top off the air shows Saturday and Sunday for the public. Not to be outdone, the Army had its "Golden Knights" parachute team which holds 75% of all the international precision parachuting records.

But, the Air Force Blue seemed to forget about that kind of performance. They came to compete in the Model Meet, and, they won in convincing fashion, for the 6th straight year.

The serious hobby sport of building and fly-

ing model aircraft is directed by the Academy of Model Aeronautics, a Washington based association of 20,000 members. Men, women and children compete for more than 100 trophies and prizes in thirty different events, ranging from hand-launched gliders to radio-controlled models.

Despite the size of the meet, it is open to any Academy of Model Aeronautics member who wants to enter, and who will pay the required entry fee. Membership in the Academy costs \$3 for Junior members to age 16; \$4.50 for Senior members to age 21; and \$6 for Open membership.

Aircraft flown in the event range from small indoor models, gliders and rubber-band powered, which cost less than a dollar to construct, to four-engined radio controlled scale models costing over \$1,000. Between the two extremes is a ladder of progression in aircraft complexity and cost.

From rubber-band power, the young modeler can go to a tiny engine designed to fly planes with a wingspan of from 10 to 30 inches. These

engines run on a mixture of alcohol and oil, plus some igniter additives, and cost about \$5.

Ignition is supplied by a tiny heater element called a glow plug, a great advancement from early gasoline burning model engines which used a regular spark plug and automotive type ignition.

The smallest engines have a displacement of less than one-hundredth of a cubic inch, and the largest practical engines are about six-tenths of a cubic inch in displacement. This compares with automobile engines of about 300 cubic inches in displacement. The largest model engines will easily fly models of more than six feet wingspan including radio controlled models weighing over 10 lbs. The Academy places a 15 lb. weight limit on models for safety reasons.

Contest flying breaks down into three general categories; free flight, control line and radio control. Free flight models are the least expensive, generally the most popular, and were the original concept in model flying. They are hand launched, or take off under their own power, and fly unhindered except for pre-set adjustments to flying surfaces. The object in most events, from glider to the largest engine-powered free flights is duration of flight.

Control line, a more down to earth form of flying, allows the pilot to control the up and down motion of his craft, plus engine speed, flaps etc. by means of thin steel lines attached to one side of the plane. Flying is done in a circle of about 140 feet in diameter. In this category, precision aerobatic maneuvers can be judged, including loops, figure eights, takeoffs and landings, etc. Speed is another control line event, with some models able to better 180 MPH.

The ultimate model category, and by far the most expensive, is radio control. It combines the best features of free flight and control line. The plane is equipped with a radio receiver and is controlled from the ground by the pilot's transmitter. Some of the maneuvers in the radio control pattern event are, three-turn spin, outside loops, inverted figure eight, Cuban eight, horizontal rolls, touch-and-go, tail slide, wingover and Immelman turn.

Some radio pilots practice up to 40 hours per week for the Nationals, and competition between equipment makers and model designers is keen, just as with automotive products for stock car racing. It means a great sales boost for manufacturers to have their products do well at the Nationals.

In addition to aerobatic pattern flying, radio-controlled models compete in pylon races consisting of 10 laps around three pylons for a total course distance of over two miles. The models are replicas of the popular 190 cubic inch racing planes flown in National Air Races across the country. While the full scale racers are averaging close to 200 MPH, the models are doing laps at better than 100 MPH.

Scale events are held in each category, with radio control scale being a big crowd pleaser at the Nationals. Popular scale models include World



These beautiful, identical model planes were designed and built by Jim Van Loo (right) of Sioux City, Iowa. Jim, a long time friend of the Editor of MC&S, entered the semi-advanced stunter "Chipmunk" in the controlled line competition, and placed 14th in the nation with this new plane. His mechanic (left) Mike Scott, of Markato, Minnesota, ably assisted Jim.



It's night, and the dark runways of the Naval Air Station, Los Alamitos, are a bit forbidding. But inside Hangar One, there's warmth, light, and a lot of hard work going on! Here, despite the midnight hour, a hundred model airplane contestants work intently on their planes, trying to beat the early morning deadline, when that "moment of truth" will be upon them.

War One and Two designs. Entries in radio control scale have included a twin-engined P-38, the XB-47, a twin-engined B-26, as well as the popular Newport Spad and Fokker planes.

At the end of the meet, the military representatives each went their own way, with the Air Force sending its secret weapon back to Germany with everything but a Honda. Tech Sergeant Reid Simpson won both the Open Division and the Grand National Individual Championship, but the Honda he received along with his trophies will probably not make the trip to Germany where he is stationed with an Air Force Security Unit. The Air Force doesn't make provisions for flying Hondas these days!

THE CHAMPS

What does it take to be the Nation Championship team? According to Captain Bryant Thompson, the Team Manager, it's a long road. It started in 1948, at Keesler AFB and slowly, (1950, Capt. Bryant was the only Air Force entry) things began to happen. Now there is an Air Force World Wide Model Meet, with the winners coming to the Nationals. The results of all this work has been the team championship for the last four years, and now the 6th team title and 2nd individual title.

The Air Force World Wide Meet only had about 40 competitors this year but the competition was *strong*. They could hardly hold all of the planes on the sprawling Randolph AFB! Most people qualified for the meet with wins within their own commands like the Air Training Command which provided most of the team members.

But, there's one in every crowd. Reid Simpson, the Individual Grand National Champion, came all the way from Germany and didn't have to qualify for the Air Force Meet. He Won the Nats in 1965!

How does a person stay involved for a period of years? "I'm just a hobbyist" says Capt. Thompson. He's also a full time reader of Model Car and Truck and Model Car and Science (he says they are 2 of the top three mags in the field). The one major point that Capt. Thompson had to make is that all the men on the Air Force team are not what you would call a full-time modeler. This is a *hobby* with them, although they spent a *lot* of time modeling. Each man has his own full-time

job in the Air Force; some are mechanics, some are instructors. Simpson is a computer programmer, and Capt. Thompson is an instructor. The Air Force comes first.

There is a lot of competition at the Nats, but the rivalry and camaraderie on the Air Force team is something to behold. A2C Larry Miller from Cleveland, Ohio, stationed at Cannon AFB in New Mexico, gave teammate Simpson a run for his money until Saturday morning, when in the 1/2 A speed flights, his model fell apart in flight. Then, while the competition was still going, Capt. Bob Adair went back to the "pits" in the hangar and put the plane back together with epoxy. However, the plane didn't get off the ground and Airman Miller had to settle for sixth overall in the individual championship. Friday, Reid Simpson was about to give up when his free flight entry got lost in the haze and drifted off into a corn field. Simpson spent four hours looking for the plane and the rest of his teammates did too; in fact Larry Miller, who isn't as tall as some of the corn, came back looking like a sweaty weed!

Overcoming all the headaches and heartaches, the Air Force managed to keep flying with three other men rounding out the main team with Sergeants Billy Wheeler and Curt Burrus of Randolph AFB Texas, and Sgt. Bert Dugan of Shepherd AFB Texas. A supporting cast filled out the team, acting as crew and mechanics for the top point winners, and still got in their flying time. The Air Force team shows that it is teamwork that counts on a winning team!



Capt. Bob Adair and Staff Sergeant Paul Jamison of Perrin AFB, Texas, are not really going at this backwards and upside down. It's just the Air Force way! The plane is a Grumman Ag-Cat powered by an Aero 35 engine.



The competition gets wild! Here, ready for takeoff in the radio controlled air races, nervous competitors await the word.



And Joseph Bridg's R/C Midget Mustang, powered by a K&B (didja catch that slot fans?) rear rotary engine, is in the air!



The NATS had national coverage too. Here the Mustang settles in front of ABC's "Wide World Of Sports" camera, catching the action from the top of the "cherry picker" in the background.



Reid Simpson, of the Air Force team, gives Erick Wood of Los Angeles, a few pointers on his glider. Reid picked up the Individual Open Championship, and Grand National Championship titles.

Anyone want to buy a Honda? Reid Simpson is ready to sell. After he won the thing, the Air Force apologetically advised him that they're not in the Honda shipping business, so it won't go back to Germany with him. Well, congratulations anyway Reid, from the crew at MC&S!

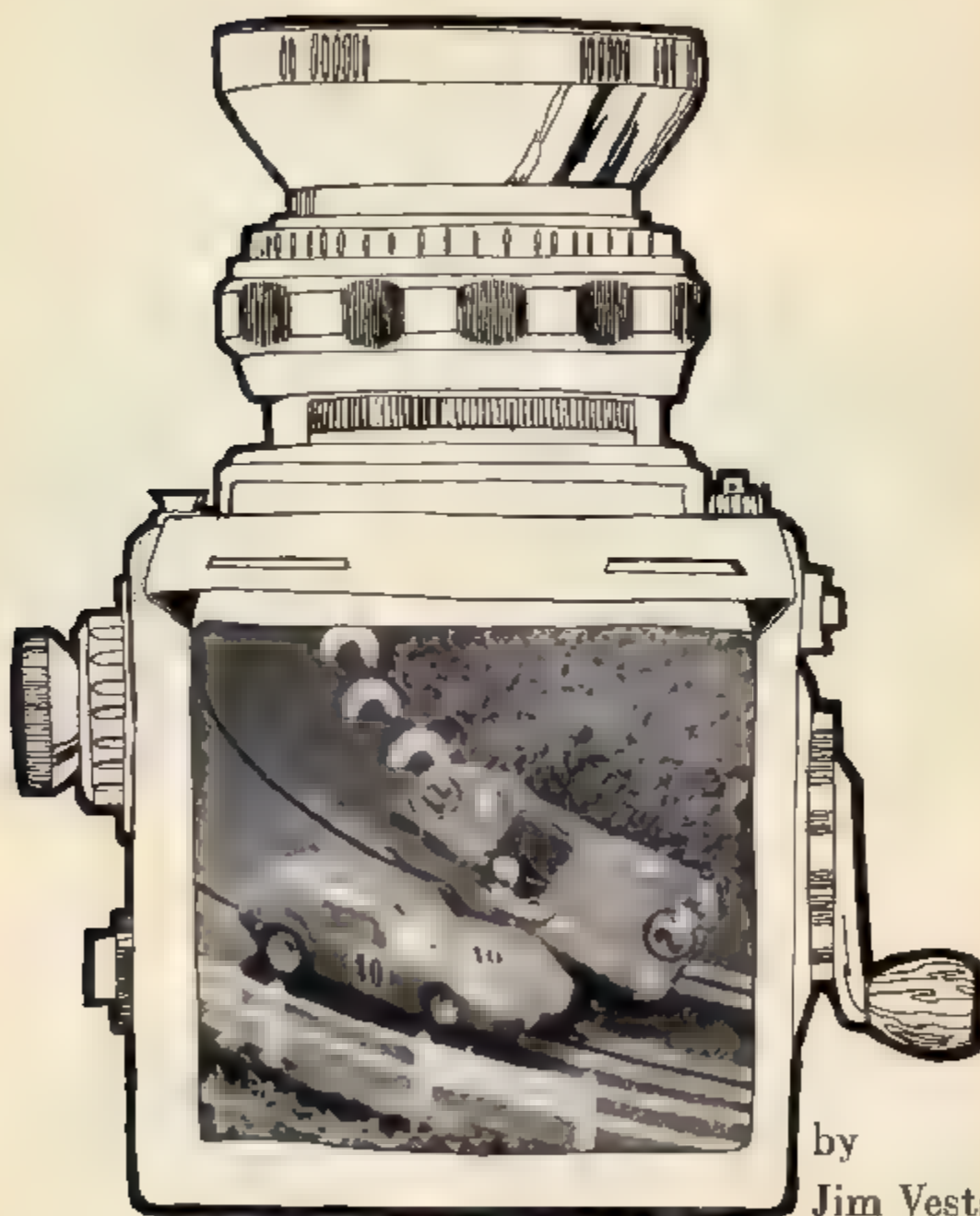


This sports fans, is what our boys in Viet Nam are fighting for! Tere Rich, "Miss Mode Aviation, 1967" presided over the NATS like a true Queen.

It's doubtful if you'll see a more professional looking crew anywhere than 'The Big Five' you see here. The members of the Air Force trophy-winning team are, left to right Bert Dugan, Larry Miller, Reid Simpson, Curt Burrus and Billy Wheeler.



PHOTOGRAPHING YOUR CAR



by
Jim Vestal



A piece of curved slot track and store window "grass" provide the photographer with a temporary race course. The final photo will not show track ends.

Photographing your models can be rewarding, IF you know all the ins and outs. Successful model photographer Vestal, winner of the 1963 Associated Press award, reveals all the secrets — including the various dos and don'ts.

Model car hobbyists are much like parents — both are proud of their children. For the moment we will consider the model car enthusiast a "parent" to his models. And like all parents they would like to have a picture record of their creations. Unlike taking pictures of children at play in the home or backyard, the model car enthusiast has different problems in photographing his family of

models. So often the pictures have to be taken within inches of the subject, much closer than the regular camera is designed. Just about any camera can take close-ups of models without too much additional expense, but there are numerous advantages and disadvantages with the various types of cameras in use today. A knowledge of the techniques and understanding of lighting methods and

camera equipment will also improve model photography tremendously.

I plan to explain on these pages some of the techniques involved in photographing scale models to give the pictures some authenticity and quality much as would be expected at roadside during a grand prix. The camera is of course the prime consideration, and although I've found one type that seems to lend itself particularly well to model photography with a minimum of expense, I will explain methods involved in using cameras that a modeler may already have in his home.

THE CAMERAS

There are basically five types of cameras popularly in use today — the box camera, the single-lens reflex, the range-



Camera angle shown above hides cap used to tilt car for action effect. Extreme wide-angle lens changes the perspective of the picture as indicated in the photos at left and below.



By stopping down the f-stop the depth of field is increased. The photo above was taken at $f/4$ with a 105mm telephoto lens on a 35mm camera. Photo below was taken at $f/32$ with the same camera and a 105mm lens.



Under, the twin-lens reflex and the press-type cameras. The box camera is the cheapest (starting at about \$6) since it has but one shutter speed, is fixed focus and has a fixed aperture setting. There are presently improved box cameras that are still inexpensive to buy that have some of the variables in the shutter, focus and aperture. These would be the best of the box style cameras to start with since they do offer the added control.

When using a box camera it requires the addition of a close-up lens referred to as a Portra Lens.

The additional lenses attach to the front of the camera lens to permit pictures to be taken as close as six inches depending of course on your particular camera, lens and portra lens attachment. Normally box cameras are useless at less than five feet. The combination of two portra lenses will permit pictures as close as three inches.

Portra lenses usually start at about \$2.00 and are made in three strengths: $+2$ and $+3$. These lenses can be worked in pairs to create strengths from $+4$ to $+6$. The higher the plus (+) rating, the closer you may photograph. Although it would be impractical to attempt to give you all the variables with

these, and each camera would vary slightly, I will give you one sample as an illustration.

If for instance you had a camera that took 24mm by 36mm pictures that had a 30mm (two inch) lens on it such as most 35 mm cameras, and you used a +2 portra lens you would be able to photograph your models with a "fixed focus" camera at 18 inches. This would permit a picture area at that distance of 8-1/2 by 13 inches. If your camera is not a fixed focus and you are able to twist the lens and focus it, you would have the following combinations with a +2 lens.

(1) If the lens were set at infinity you would be in focus at 19-1/2 inches. (2) If the lens were set at 10 feet you would be in focus at 17 inches. (3) If the lens were set at 3-1/2 feet you would be in focus at 14 inches. Of course each combination of lens and camera would vary but any camera store dealer that can supply you with a portra lens can also supply you with the information for your particular camera.

Portra lenses on many box cameras have one disadvantage. That is they do not have the additional control of a variable aperture (called the f-stop) which controls both the amount of light permitted to pass through the lens and the depth of field.

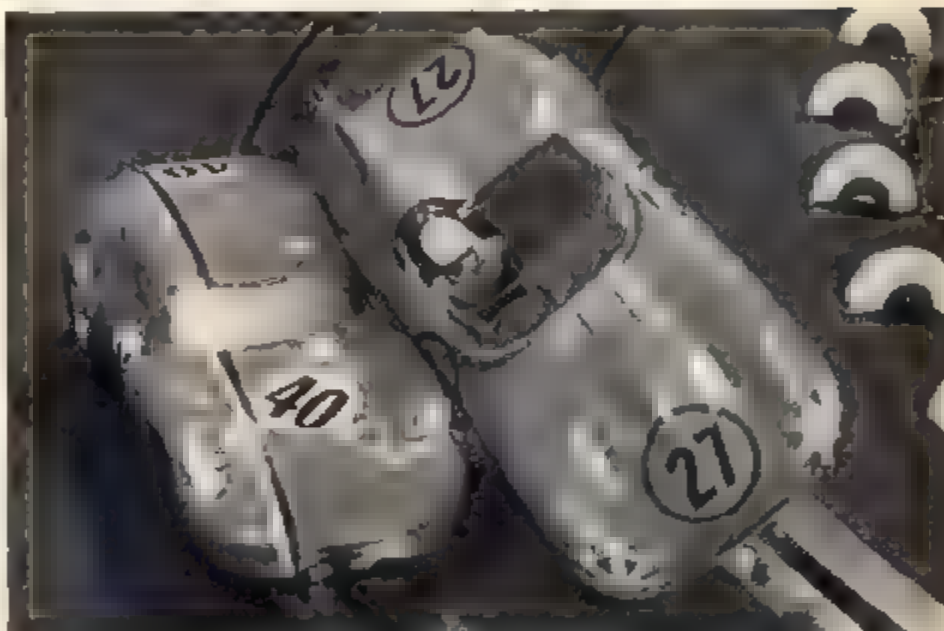
Depth of field is the area that is critically sharp from foreground to background. For instance you may like to vary the f-stop from the widest opening (like f2.8) to blur the surrounding area, or close it down (to f22 or f32) to increase your depth of field and therefore picture sharpness. The trick with portra lenses on cameras which do not permit you to view through the taking lens is that each picture has to be measured from subject to camera lens with a ruler or yardstick.

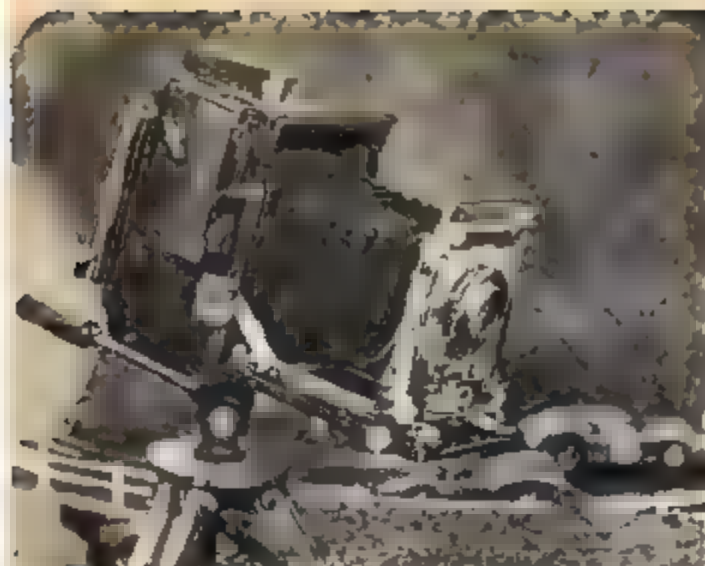
Once you have acquired a portra lens for your camera, and you have determined your normal shooting distance (by test or the camera dealer's information), you may like to make a "focal frame" for close-ups. This is a wire frame attached to the bottom of your camera that can be constructed from an old wire coat hanger which can be bent to form a three sided box to outline your picture area and also the distance from subject to camera, (see Ill. #D). Of course the frame center has to be exactly in front of the camera lens. To use it, simply move up and frame your model(s) within the wire rectangle then shoot.

Author/photographer Vestal prepares for a posed action shot. Vestal was sports photography award winner in 1963



A characteristic of the Portra lens used on a non-adjustable f-stop camera is that extreme areas are not sharp, similar to effect of not stopping down the f-stop (above). Photo was made at f22 and shows how much more clarity and detail is available.





The press type camera is the most versatile for model work. Bellows allow extreme close-up work with special lenses, and allows critical focusing through the back.



This is one of the more popular box cameras for which several close-up lenses are available. Data concerning use of Parlo lenses is supplied on lens box.



With this brief introduction you have learned that to shoot close-up pictures of your models it is best to have a camera that has variable f-stops and one that you may focus. That is, if you want to get the maximum in sharpness. If you have already invested in a camera with these advantages, you may realize that it may also have variable shutter speeds (usually 1 second to $1/300$ th of a second) which permit pictures under different lighting conditions, and also allow some control over the f-stops by varying these shutter speeds. These are the advantages offered by the more expensive cameras.

One of the cameras I have found particularly suited for modelers is the single-lens (SLR) reflex. With this camera the photographer is able to view EXACTLY what the camera will record on film by viewing through a prism finder in the camera through the actual taking lens. This is accomplished by a mirror that reflects the image into the prism and your eye. This mirror flips up out of the way of the film when the shutter release is pressed.

This is ideal for model photography!

There are SLR cameras to use 35mm and 126 roll film. Various makes offered will focus as close as 11 inches without a portia lens or extension bellows.

Extension bellows are an accordion-like item that can be mounted on a camera that permits the removal of the lens. The lens is then mounted on the bellows. This places the lens further from the film plane for close-up pictures. Whenever a lens is extended from the camera body

by bellows it requires an increase in exposure over the normal exposure. This increase is not necessary with portia lenses.

SLR cameras for 35 mm film start at about \$500 new and will vary in price and accessory lenses to where an avid photographer may have thousands of dollars invested. They can be purchased used through a reputable camera dealer at a great savings and be ideal for the modeller-photographer.

The rangefinder camera differs from the SLR in that the photographer does not view through the taking lens via a prism. Instead he views through an optical finder which also has a built-in prism-rangefinder (thus the name) to view and focus the picture. But since he cannot see EXACTLY what the film sees, the rangefinder camera proves a disadvantage at close range. However rangefinder cameras can be equipped with a reflex housing (starting at \$10) if the camera permits the removal of the front lens. These housings are built with mirrors and prisms to react in the same manner as a SLR. Rangefinder cameras can be used with telephoto lenses to record models at about seven feet and be ideal for shooting action during an actual race on slot racing courses. The seven foot distance is near enough for close-ups of the cars with the telephoto lenses, but yet far enough back so that the camera does not interfere with the race or drivers. Telephoto lenses from 90mm to 135mm are available for most all types of 35mm cameras, and 135mm to 180mm lenses are available for the better 126 roll film size cameras and can be handled in the same manner. There are many 120 and 620 roll film cameras on the market, and they vary from negative size and lens

Portia lenses can be used with this twin-lens reflex camera. Parallax, however, becomes a problem as there are two lenses — viewing and shooting.

length. Negatives may be 2-1/4 square, or 2-1/4 by 3-1/4 inch. These two sizes might best be considered "normal."

The roll film cameras are generally of three types — single-lens reflex, rangefinder (both similar to the 35mm cameras) and our fourth type, the twin-lens reflex. This camera has two lenses — one for viewing the subject and one for taking the picture. The viewing lens is usually about 1-1/2 inches above the taking lens. The twin-lens reflex uses a mirror to reflect the image from the viewing lens to a viewing screen on top of the camera. This leaves the taking lens and film free to make an exposure. Unlike the SLR which uses a pop-up mirror and one lens. For close-ups the twin-lens reflex has the disadvantage, since this slight 1-1/2 inch difference at close range presents a problem of parallax. Parallax is the twin-lens gremlin which occurs when the camera is so close that the top lens sees differently than the bottom lens.

The rangefinder camera with telephoto lens permits taking close-ups from a distance. This particular camera can also be adapted for through-lens viewing.

There are two ways to correct for parallax. One is to use a correction prism (like a Rollepar for Rolleiflex and Rolleicord cameras) which mounts in front of the viewing lens and directs the viewing angle slightly downward, thereby approximating the view of the taking lens. The other method is to focus and view the subject with the viewing lens, then raise the camera the 1-1/2 inches (or the distance from the middle of the viewing lens to the middle of the taking lens) so that the taking lens is in the same spot as the viewing lens.

Twin-lens reflex cameras use two sets of close-up or portrait lenses, one for each lens. In this way both lenses react to the close-up situation. Or you may buy one lens, view through it, raise the camera up, attach the close-up lens to the taking lens and shoot the picture.

Possibly two +2 lenses would be ideal at this point: one +2 for each lens of the twin-lens camera. Then when you desire to get closer than the +2 lens would permit, you add the two +2 lenses for a +4, and switch them from the viewing to the taking lens.

The last camera to discuss is the press type camera.

This camera is equipped with bellows, a lens board frame for interchangeable lenses, a rangefinder and a ground glass viewing back for focusing and composing the picture. The backs of these cameras separate to accept cut film holders (two exposures per holder), film packs (12 per pack), roll film adaptors (for 120 roll film) and even Polaroid adapters so you may have pictures in less than a minute. This camera is commonly made in three sizes — 2-1/4 by 3-1/4, 3-1/4 by 4-1/4 and 4 by 5 inches. A sharp buyer may pick one up for \$50 and up. They are probably the most versatile of all the cameras, depending on the accessories. It has the advantage of (1) large film to work with, (2) you may shoot one picture at a time and develop it, (3) critical viewing through the rear of the camera, and (4) some of the cameras offer "swings and tilts" to control perspective and sharpness by moving the lens board on an axis. They have controllable shutter speeds, f-stops and bellows for critical focusing and close-ups.





An SLR camera is mounted on a tripod for steady exposures. It allows close-ups without additional lenses and through-lens viewing for exact photo framing.

The main disadvantage is that film is more expensive.

LIGHTING

Lighting of your models is of prime importance, since the lighting of the automobiles will show the individual characteristics of the car at its best. There are basically four types of lighting methods to use — sun, photofloods, flash bulbs and electronic flash. And, in a sense, they come in that order in cost, but not in quality and controllability. Direct sunlight should *not* be used as it is too harsh and too hard to control. I haven't found anyone that could move the sun around in the same manner as photofloods, flashbulbs and electronic flash units. It can be used however, but only in a pinch.

Sunlight casts a very strong shadow which can be reduced by using a reflective board, such as a white cardboard or crinkled aluminum foil. These boards are used to reflect light into the shadow area. Shadows can also be reduced by using flash-fil. Flash-fil is used outdoors to reduce shadows by firing a bulb when the shutter is tripped. It requires some experience with your particular flash bulb's size and illumination intensity to acquire the proper balance between flash and sunlight. Often this information in flash-fil can be obtained from back of the flashbulb wrapper. Indirect sun on an area with bright shade can be ideal for pictures. Since there is actually no direct harsh sunlight hitting your models

it usually doesn't require additional lights or reflectors to shoot pictures.

Ideal spots for this type of lighting may be used in areas that are predominantly light colored (white is best if you shoot color), but yet in the shade possibly in front of the garage with the door open, or on an open porch. Curving a piece of cardboard under your model and up a wall will illuminate unsightly seams in the background. A tripod or sturdy table is best for taking pictures. The camera must not move for sharp pictures.

Photofloods are ideal for shooting models and slot racers indoors. They supply a continuous source of illumination for full control and planning of a model situation. The drawback to photofloods is they do not produce the illumination intensity of the sun, flashbulbs or electronic flash units. But they are inexpensive and can be set up anywhere that a 100-115 volt plug is . . . on common household current. Photofloods in general use are the #1 — 250 watt wide-beam bulb that lasts about three hours and the #2 — 500 watt wide-beam bulb that lasts about six hours. These are ideal for black and white pictures.

When using indoor color film, it is suggested to use 3200° Kelvin photofloods. This information is found on the data sheets with the color film. The average life of a 3200° K photoflood is 20 hours for the #1 and 60 hours for the #2. The photoflood's bulbs should

be used with metal reflectors, and a set of three reflectors (without bulbs) may run from \$10 to \$20. The photofloods sell for 35¢ to 70¢ apiece. Also available are reflector photofloods, most often used as illumination for movie bar lights.

These do not require the addition of a reflector, since the reflector is built into the bulb, but for this the cost runs from \$.90 to \$2.00 apiece. The average life for a 3200° K reflector photoflood of 375 to 500 watt is about 15 hours. Since photofloods are not as powerful as the other three light sources mentioned, they require longer exposures for maximum sharpness.

Flashbulbs are fine for some quick on the camera pictures of slot racing in action, but a bit awkward and expensive for detailed set-ups of models. Usually three lights are used for most posed pictures. Bulbs cost from 12¢ up. This could be expensive if a large number of pictures were taken. It would also require additional flash units wired together and synchronized with your shutter. Various types of these units are commercially available. Often the same photoflood metal reflector can be used, since the larger flashbulbs work in the same size sockets, or a 25¢ adapter can be inserted to use the smaller bayonet flashbulbs. A three-cell flashgun with fresh batteries would be the power source.

Most units have the shutter speed equivalent of 1/500th or 1/1000th of a

second. This will stop most action found on a slot racing course. (see III. #K & L).

These units operate much in the same manner as flashbulbs, but they synchronize on "X" on a camera shutter. Flashbulbs use "M." The electronic unit is designed to fire when the shutter is fully open. Therefore you have an instantaneous light source with the same amount of light no matter what shutter speed you use. The distance from subject to electronic flash unit dictates the proper f-stop.

DO NOT use flashbulbs on household current. They will only blow the fuses when the current makes contact with the flashbulbs. Flashbulbs should only be used with flashbulb equipment. Photo-floods of course are used on household current. The best illumination source is the electronic flash unit.

These are AC or battery operated flash units with a gas-filled bulb. The bulb is often guaranteed for 10,000 flashes! The power to many units are small flashlight type batteries, or rechargeable nickel-cadmium batteries, or units that can be plugged into normal household plugs. Electronic flash is ideal for use as an action-stopping light.

Electronic units are equal to sunlight in color balance. Therefore if you desire to shoot color pictures of your own models, you may use the same daylight type color film as you would outdoors. With flashbulbs and daylight color film you would use a blue bulb. Clear flashbulbs are used with negative color films like Kodacolor X. When using electronic flash with a negative (for prints) film like Kodacolor-X film, it requires a spe-



Above is set-up used to catch action in left hand photo. Vostal used two electronic strobes, positioned as shown.

Real action is "frozen" by electronic flash that has a shutter speed equivalent of 1/1000th of a second

cial #85 filter. The individual electronic flash units will suggest the proper exposures with the various types of black and white and color films.

TECHNIQUES ON AND OFF THE TRACK

The foregoing explained some of the cameras and equipment that may be used for taking model car and track pictures, now let's discuss some of the techniques in photographing the models on and off the track.

It really makes no difference what illumination source you use to photograph models — they all need proper lighting methods. All subjects require a main light (or key light), a fill light and a backlight. The main light speaks for itself — it dominates and is the key to the lighting. The fill light fills the shadows to the extent you wish the shadows to be filled. It is weaker and farther back from the subject than the main light. The fill light would be equal to the reflector or flash-fill I mentioned earlier when shooting in the direct sun. The backlight is just that — it is placed *behind* the models, lighting the sides and edges, so that each car will separate one from another. Often this light is used as a main light and the main becomes an alternate fill light.

Diffused or indirect lighting is also

good. This method requires that the illumination be "bounced" off white walls or cardboard, or that the light source be diffused by aiming the lights through a diffusion material like white cloth or similar. This method removes the shadows and creates a soft light without brilliant highlights. It is much the same effect you would achieve when photographing in the shade of your garage as previously mentioned.

Remember when you photograph models — two lights are better than one, and three if properly used are better than two.

The best method when using lights is to set them up one at a time until you have the lighting you desire, starting with the main light.

The location of your subject matter is of key importance. Too much garbage in the background is distracting. If it doesn't add to the picture setting, discard it.

On the track you should try to imitate as much as possible a situation that would be found at Laguna Seca, Riverside, Monaco or Sebring. Miniature situations can be improved at home in the garage, den or living room if you have a short piece of track especially made for pictures. This may be a piece of discarded

or extra track. I've found that a curved track section is ideal. In this way I can crop out the section of track that runs off the edge so that in the photo it actually looks like a completed track site. Or with some help from the local track course manager, you may be able to use the track for special photographic purposes, maybe start a "picture night."

Situations can be set-up using wire bent into little stands to raise a car so that it looks like it is undergoing considerable action. I've found Allen wrenches set into the track groove a good way to lift a car off the track. Even a coat hanger or heavy soldering wire can be bent to lift a car. And a choice of camera angles will eliminate any tell-tale wires or shadows to the unsuspecting picture viewer. Track scenery can also be used to the advantage of the modeler-photographer.

Remember when making pictures of models, you have a choice when using variable f-stops of what will be in or out of focus. If you desire the maximum in sharpness, you should use the smallest f-stop. F22 and F32 will increase your depth of field so that you will eliminate the fuzzy effect of pictures taken at the larger (F2.8 or F4) f-stops. Non-adjustable apertures in cameras have the advantage of only having a small area sharp. By controlling the f-stop you control the sharpness. When a small f-stop is used, an increase in exposure is required. I've found that three #2 photofloods in reflectors, all from three to five feet from the subject require an exposure with Kodak Plus-X film of 1/15th of a second at F22.

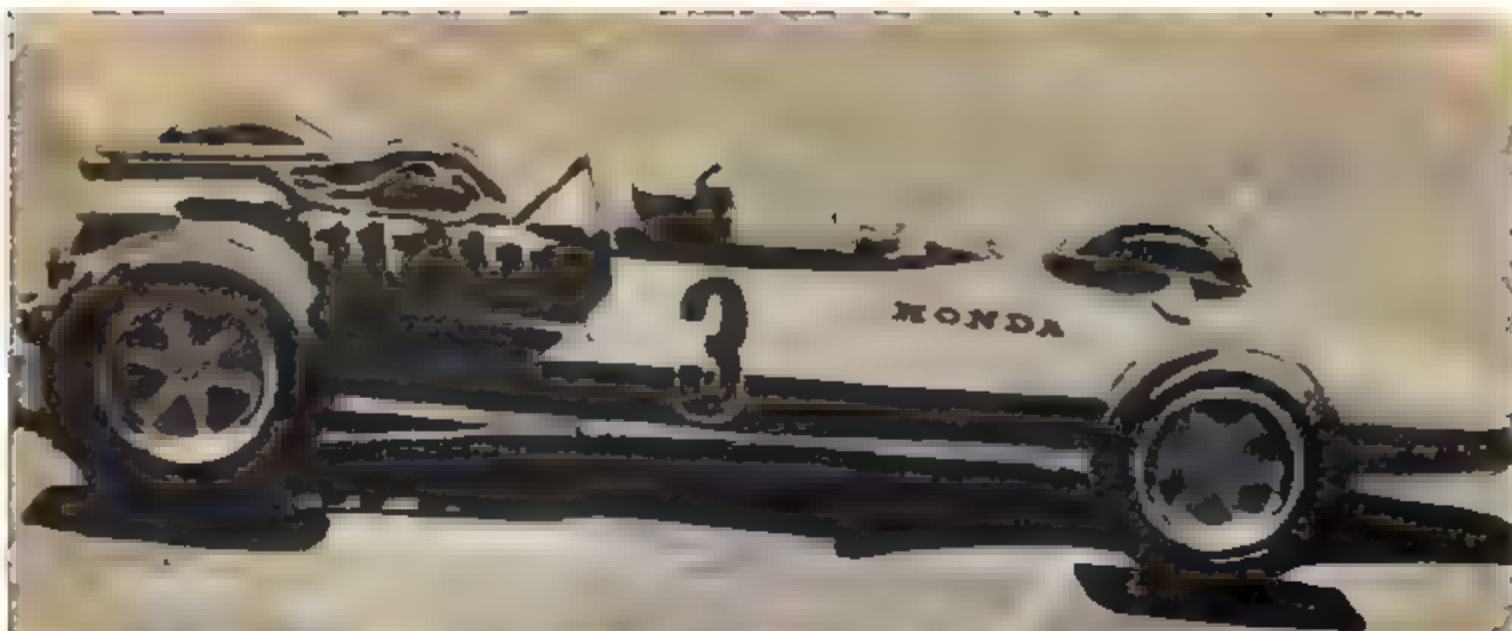
By moving the photofloods back there would be, of course, less light, and therefore either an increase in the f-stop or shutter speed would be required, for instance, 1/15th to 1/4th, or F22 to F11.

It is best to have a light meter to calculate the exposure when using photofloods. Meters start at about \$5.00. Many times the photoflood wrappers offer trial exposures. Flashbulbs and electronic flash can be calculated with the data guides supplied with the flashbulbs or electronic units. Each will vary depending upon the type of film used. And there is no better guide than a recorded trial session with your particular camera equipment. In this way it is possible to see what actually suits your situation.

Once you have taken the time to record on film your models in action or under construction, you will find that both photography and the building and racing of models is a happy marriage.



An Allen wrench, piece of coathanger wire or soldering wire can be used to support cars when simulating an accident. Camera angle should be chosen to exclude sight of props.



HONDA

Here's how they build 1/32 competition machines in England

By Walkden Fisher

When the Honda 8-litre V-12 made its debut at Monza in the 37th Italian Grand Prix in September, 1966, it immediately attracted a great deal of attention and admiration. The car was large, beautifully made, and of enormous complexity. It also was obviously an ideal prototype subject for the small scale modeller to tackle, being full of individual character.

Later at Watkins Glen for the United States Grand Prix, the Honda driven by Richie Ginther appeared with an extremely interesting modification. The track on this machine had been widened front and rear, and all the drives and wishbones were consequently made longer, the increase in track being 7-3/4 inches. This was a very useful modification for the constructor of a miniature replica to take full advantage of as it allows more space between the body shell and wheels and facilitates the installation of suspension details.

The original "Monza Honda" dimensions were: wheelbase — 8 feet 2 1/2 inches, with a front and rear track measuring 4 feet 11 inches. Ginther's car at Watkins Glen had a front and rear track of 5 feet 6-3/4 inches. Reduced to 1/32 scale therefore, the dimensions are wheelbase — 8-5/64 inches, track 2-13/64 inches (approximately) which were used during the construction of the model depicted in the accompanying photographs.

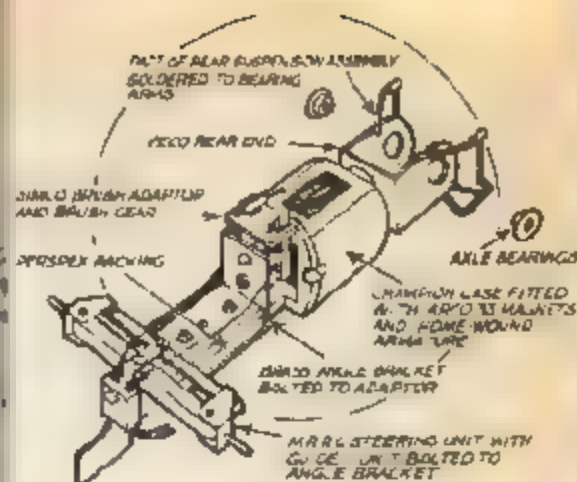
The actual building of this 1/32 scale Honda is simple and straightforward. In the construction of any model intended for racing, the heart of the project lies in the motor, and for the Honda, one of the excellent Champion cases with Arco "33" magnets installed was used. A Champion armature kit was also utilized, the armature itself being a "home wound" product. The case was then fitted with a Simco motor brush adaptor and the assembly completed with Simco brushes and spring, all

components combining to make a truly potent unit.

These items can be strongly recommended to anyone contemplating a similar project. The Champion components are of the highest standard, and the ingeniously simple Simco adaptor is a real boon to the scratch builder as it fits so easily and provides superior cooling to the can-type of motor. It also considerably simplifies cleaning the commutator.

At the rear of the motor a Veco bracket, fitted with oilite axle bearings, is bonded to the case with epoxy resin high stress adhesive. A simple brass angle bracket is bolted to the adaptor at the front, to provide a platform for the installation of a MRRC steering unit. The complete assembly of the motor and chassis is clearly defined in an accompanying diagram.

Part of the rear suspension assembly, formed with paperclip wire, is attached to the bearing arms of the Veco bracket,



The accompanying drawing tells everything you need to know to construct this beauty. Note here, how part of the rear suspension details are attached to the body shell, while the remainder are fixed to the rear axle bearing arms.

(see diagram) and the remaining components, including the coil spring damper units and trailing radius arms, are bonded direct to the body shell. On the model illustrated, the coil spring dampers were cannibalized from a plastic kit, but similar units could easily be made by using short lengths of actual small coil springs and bent wire, if plastic ones are not immediately available.

Wheels on the model are Cox's superb mags, fitted with tires produced by the same manufacturer. Cox gears are also used, the axle contrate, with 29 teeth, meshing with an 8-tooth pinion on the motor shaft, providing a smooth and comparatively quiet transmission, plus tremendous acceleration and excellent braking.

These Cox gears are another item high on the list of recommendations and are superlative, being true-running, hard-wearing, accurately formed and remarkably quiet in operation compared to the majority of all-metal gear installations.

The body shell fitted is one of the large range produced by GT Models in Britain. It is a vacuum formed shell and consequently extremely light in weight. Somewhat acrimoniously, vacuum formed shells are often referred to as "blob bodies", or merely "blobs" — rather unfair appellations it would appear. However, despite this they are in great demand

being very reasonable in cost. The acetate used by GT Models in the formation of their shells is strong and durable and has the added advantage of being capable of being bonded with balsa-cement, acetone, impact adhesive or epoxy resin adhesive, whereas many other shells of this type melt or distort in areas where such adhesives are used.

A block of light balsa wood, shaped and fitted inside the nose cone, reinforces the latter, and a strip of shim brass bonded under the hood from the windscreen to the nose adds rigidity to the shell with the addition of very little extra weight. Apart from this no additional weight is incorporated and the performance has indicated no requirement.

Finished in ivory, with a red roundel ahead of the windscreen and a red stripe on each flank, the model has captured the potent character of the prototype to a great extent. Since the accompanying photographs were taken, a thin black line has been added on each side of the red stripes. On the prototype car this line is a very dark, metallic grey. Exhausts are painted matt white, and engine details, etc., all of which are molded in the acetate shell, have been "picked out" in matt black, grey and aluminum.

The model is very fast and stable. The strength of the shell has been proved beyond doubt

following an "incident" when it struck an obstruction while at speed, and shot over a guard fence to fall some distance on to a concrete floor. It suffered very little damage! In fact, the shell was entirely unscathed!

Undoubtedly, the 3-litre, V-12, F1 Honda is an extremely interesting car to build in 1/32 scale. Its intriguing details offer plenty of scope and, being one of the largest Formula One contenders, it provides the small scale modeller with considerable advantages over some of the other machines competing in this Grand Prix category.

In Britain, 1/32 scale continues to retain its popularity among the majority of clubs, mainly due to its very convenient size, and in the United States, where 1/24 scale almost took over completely 1/32 is now making a big comeback. Future developments indicate a stronger emphasis on 1/32, which in the past, much to the regret of many, has been somewhat neglected in favor of the larger scales.

The 1/32 scale, scratch-built Honda, which is comparatively simple to construct, serves as just one example of the many models capable of being built along similar lines to this accommodating scale. Moreover, it is highly competitive and sufficiently powerful to more than hold its own in club competitions.

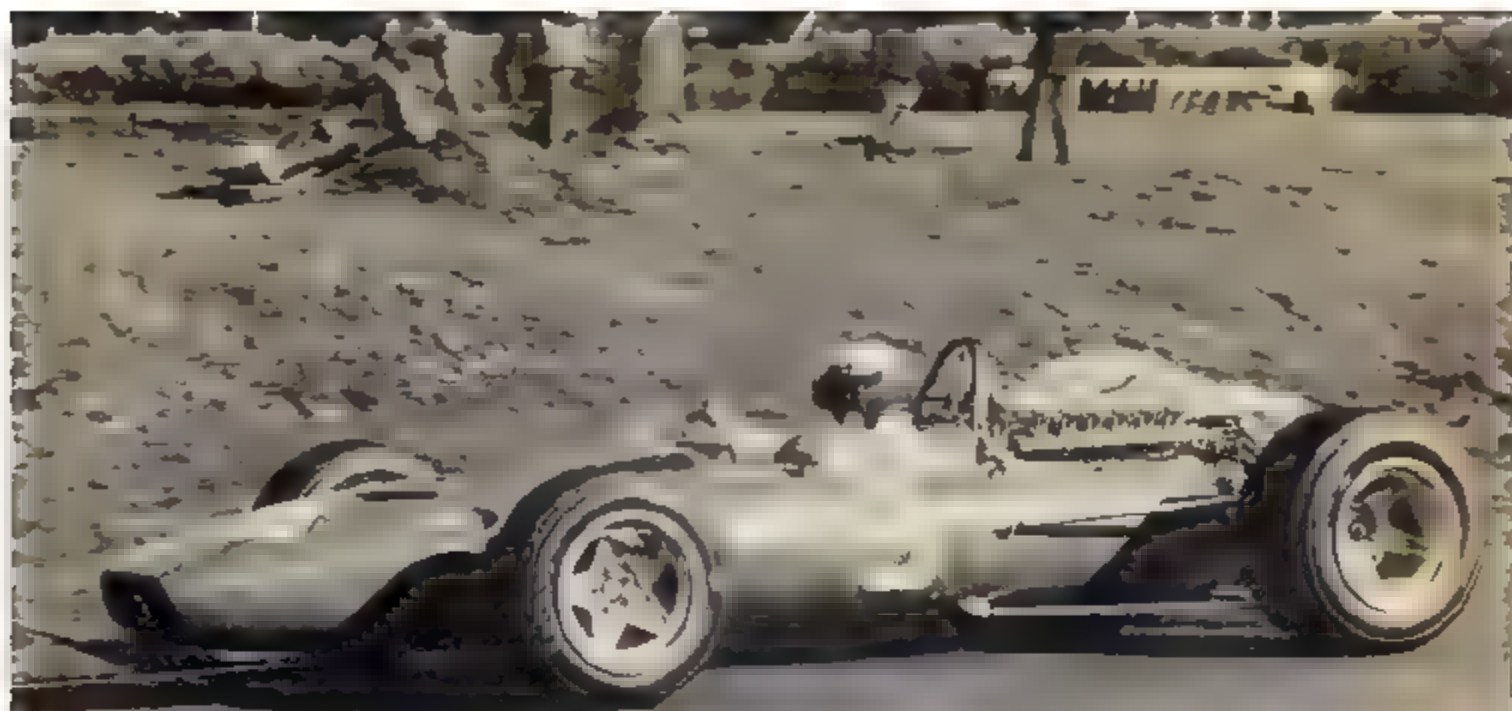


The wide track facilitates the installation of the rear end suspension details. Gearbox and gearbox oil radiator details add to the interest of the rear end.



Although this body shell comes from England, you could carve your own from wood, very easily. Due to the favorable wheelbase/tread ratio, this car is very competitive.





CLASS RACING - WHAT IT'S ALL ABOUT

Organize your racing and have more fun!

"Class racing! Who wants to be bothered with that Man, all I want to do is barrel around that track! I'll race anybody who comes up against me, I don't care what he's driving!"

A common attitude. We've known guys like this, and so have you. They couldn't care less about sharp paint jobs, decals, or for that matter, sometimes even bodies! A bare frame, a big motor, and that's all they care about.

Unfortunately for them, they will soon find they won't have anybody around to race *apart*. For there's no faster way to kill interest in the sport of slot racing, than to follow this kind of reasoning.

In order to enjoy slot racing to the fullest, you must find a class of racing that you like, and jump in with both feet! If you are all "hung up" on Grand Prix cars, there's a class for you, and guys who think like you do. If open Sports-Racing cars make you go all jittery inside, smile, because there's a class for you too!

Organization is necessary in racing, more so than in nearly any other sport. Fortunately, a sensible set of rules and regula-

tions have been drawn up by one of the oldest and most respected group of slot racing enthusiasts in the country. NAMRA, which stands for North American Miniature Racing Association. They're situated in what we Mid-Westerners refer to as "The Far East"—United States, that is. Their address is P.O. Box 578, Times Square Station, New York City, N.Y. 10036.

NAMRA's rulebook clearly defines the various classes that cars should race in, and I believe it would be beneficial to examine their recommendations. These are taken directly from their comprehensive rulebook, which is available to members of NAMRA only. Membership in NAMRA can be obtained simply by sending \$3.00, if you're 17 years or younger or \$5.00 if you are 18 years or older, to the above address. This money will cover dues for one year. Commercial track operators can also join. Their dues are \$2.00 *per lane* for tracks in their shops.

CAR CLASSIFICATION

Article 1

There will be 6 classes in both 1/24-1/25 and 1/32 scales, recognized by NAMRA; these classes are based on body design

and scale as outlined below.

A. Grand Prix: includes, in 1/24-1/25 and 1/32 scale.

1. Formula 1
2. Formula Jr.
3. Formula 111
4. Indianapolis Roadster
5. Dirt Track Sprint
6. Midget Racer

B. Sports Racing includes, in 1/24-1/25 and 1/32 scale, two seat, open-body shells with fenders, head and tail lights (non-operative) of the European type sports cars or modified racing cars, used on road-racing circuits.

C. Gran Turismo or G.T. Prototype includes, in 1/24-1/25 and 1/32 scales, two seat closed body shells with fenders, head and tail lights (non-operative), closed windows all around, of the European type G.T. or Prototype, including American made cars, which are used on road racing circuits.

1. American production cars are excluded except Corvette, and Stingray, coupes and the two seat Ford T-Bird coupe.

D. Grand National Stock: includes, in 1/24-1/25 and 1/32 scales, models of 1960 or later, two door American production

coupes used in Grand National stock car racing programs sponsored by U.S.A.C.

1. Clear plastic bodies are excluded.
2. Convertibles and roadsters are not eligible.
3. Modified body shells are not eligible.
4. Late model American compacts are eligible.

E. Modified Stock: includes, in 1/24-1/25 and 1/32 scales models of 1959 and earlier American two door production coupes.

1. Clear plastic bodies are eligible.

2. Convertibles and roadsters are not eligible.

3. Modified body shells are eligible.

Note 1/24 and 1/25 scales shall be classed in the same scale group because of the slight difference in actual dimensions between these two scales.

The above recommendations were taken directly from the NAMRA rulebook. As you can see, you can find a class to race

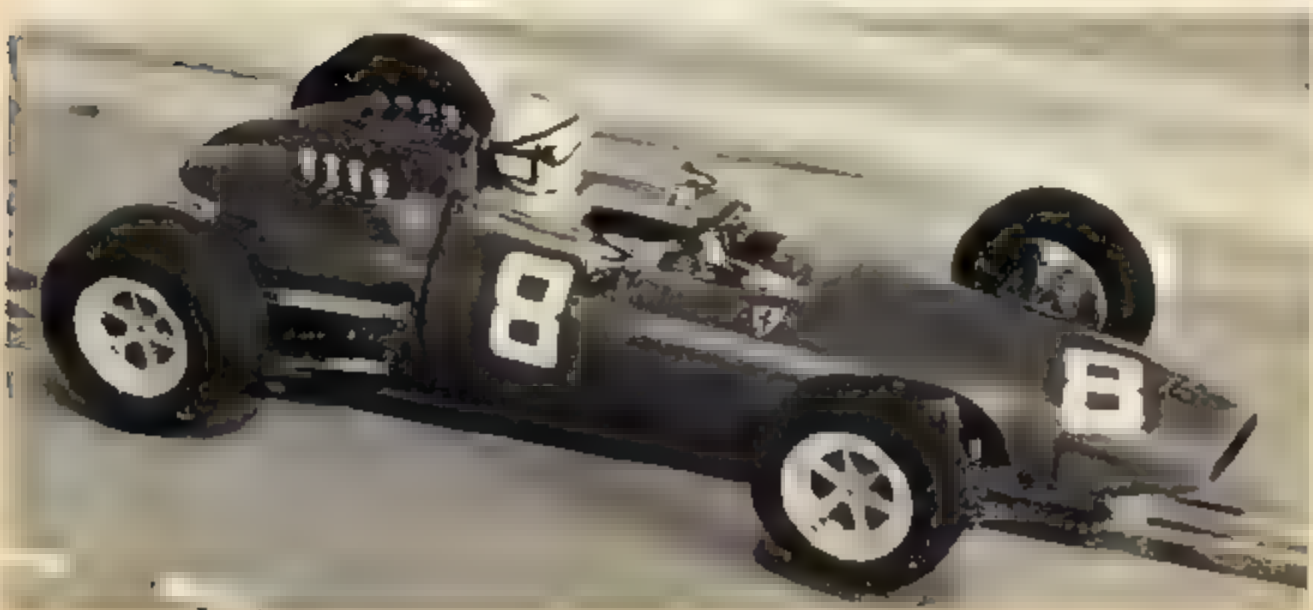
in, no matter what kind of cars you like!

Obviously, 1/32 scales cars will only race against other 1/32 scales cars, no matter what class you decide to race in. The only two scales that race together are 1/24-1/25. See "Note", above.

You can utilize these rules right at home, on your custom made, or Revell, Strombecker, Aurora, Monogram, or other make of home set. It'll make your racing a great deal more interesting!

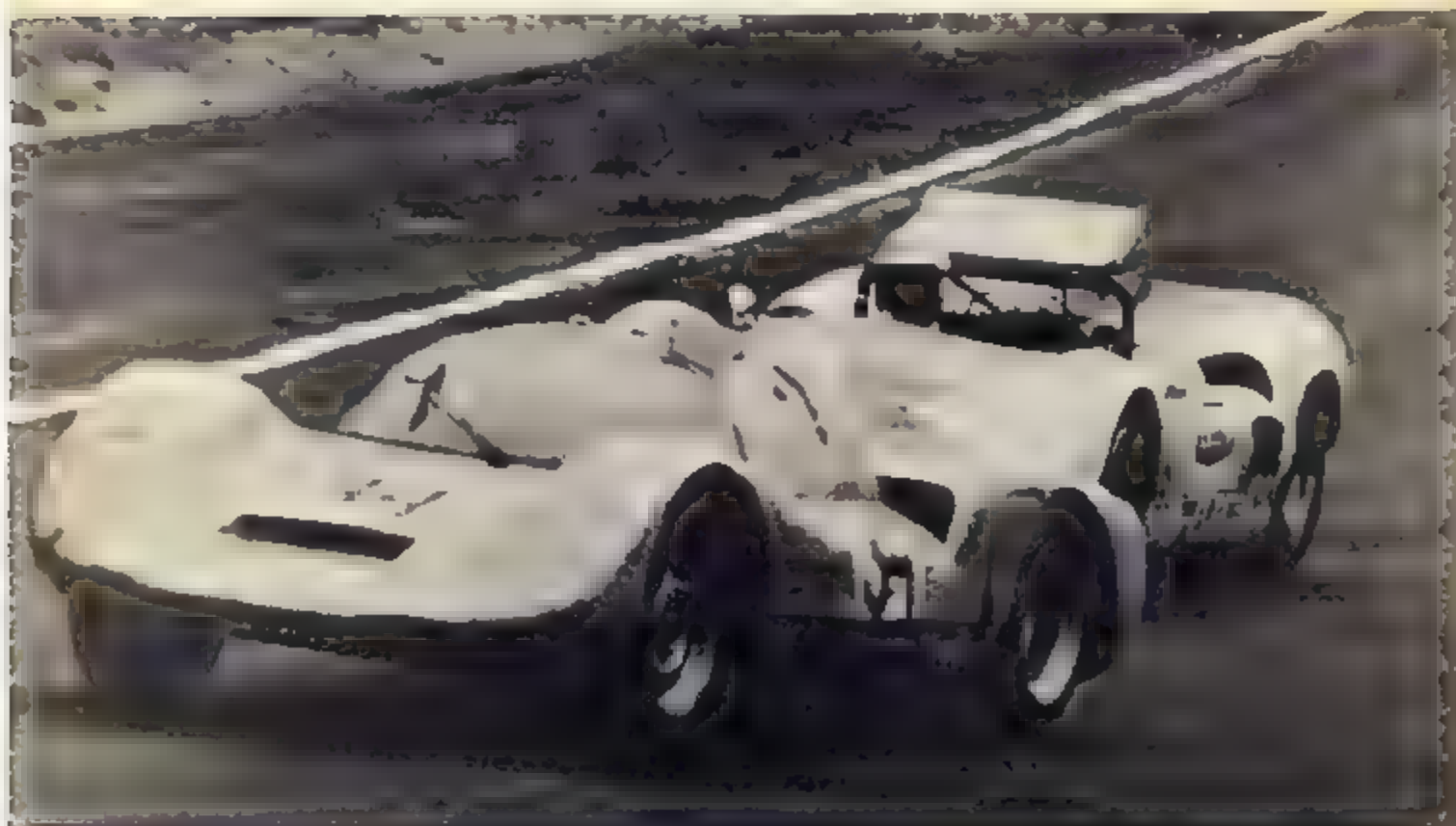


Choose your weapons, then the class you want to race in. The Grand Prix class has room for cars such as Monogram's Midget, Cox's BRM and Ferrari, Monogram's Lotus and Ferrari and similar cars.





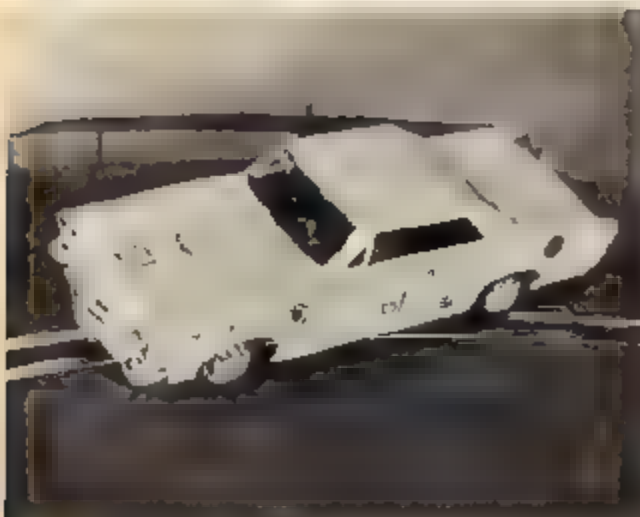
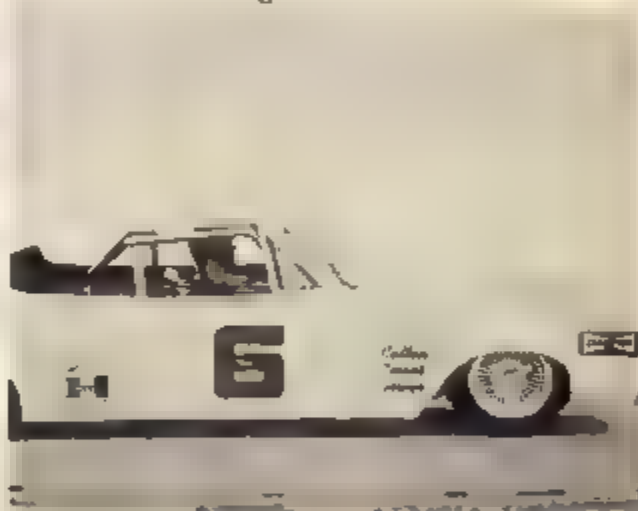
Sports Racing is wide open, since there are great numbers of cars that will fit into this class. Both 1/32 and 1/24 scale has an abundance of beautiful cars available.

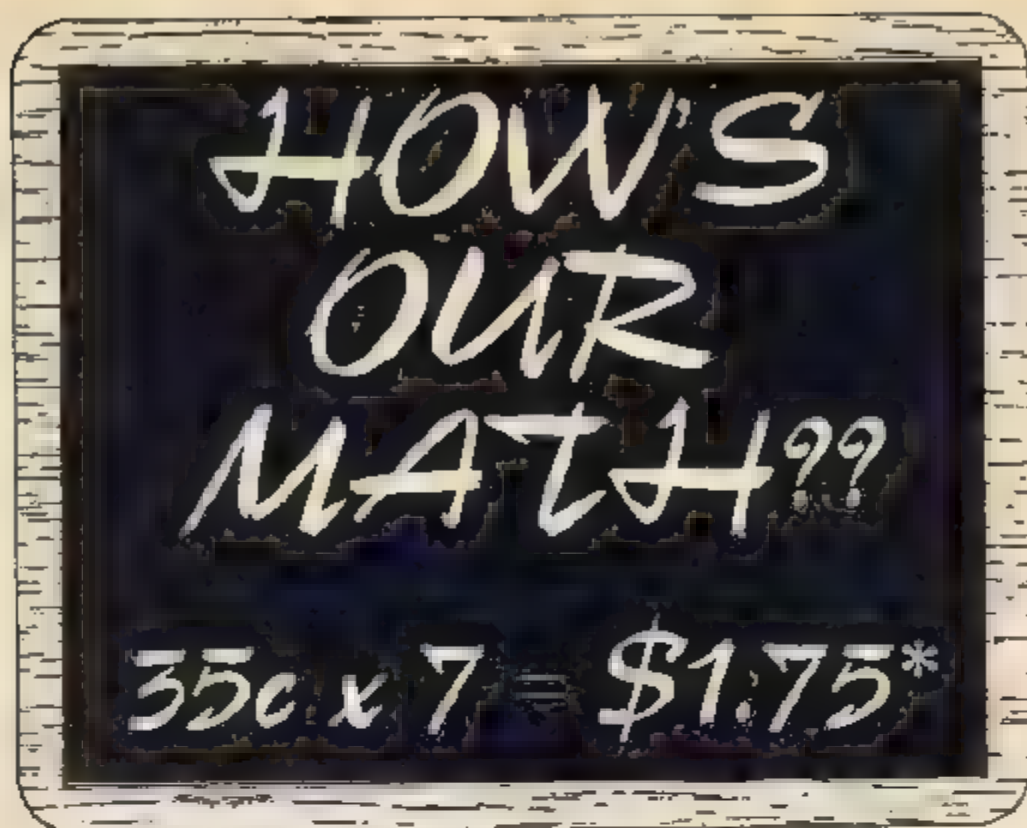




The Grand Turismo class too, teams with brilliant machinery! You won't have any trouble at all filling up the starting grid with first class G.T. cars

The Grand National Stock, and Modified Stock classes are a little different proposition. While stockers are rare, there are a few progressive outfits like Champion of Georgia on the move with these "big rollers"





TERRIBLE!!

*FIGURE IT OUT FOR YOURSELF . SEVEN INFORMATION-
PACKED ISSUES OF MODEL CAR SCIENCE, AT 35c PER
MONTH, SHOULD COST \$2.45. BUT NOT BY OUR ARITHME-
TIC! TRY US OUT FOR SEVEN GREAT MONTHS, WITH A
TRIAL SUBSCRIPTION, AND WE'RE YOURS FOR ONLY \$1.75
... WHICH COMES OUT TO ... UHH ... 25c PER COPY!
THAT'S HALF THE PRICE OF ANY OF OUR COPY CATS.
POOR MATH . BUT A BARGAIN DEAL FOR THE BEST
MAG ON THE SCALE SCENE.



Model Car Science 131 Barrington Place Los Angeles, Calif. 90049

Enter my subscription for 7 issues at \$1.75.

Name _____ (Please print clearly)

Address _____

City _____

State _____ Zip _____

(please fill in your zip code)

SLOT RACING SUPPLIES



TOM WOJAHN

"The latest thing in ultra-light cars!"



TOM WOJAHN "I hear they've got a very tight course!"

Isn't
a
mini
wide track
merely
more
manufacturer's
double
talk?

Not at all. At Rigger we take a miniature version of our Porsche wheel — beef it up with a full 3/8 inch of thread.



Onto this tough little jewel we pre-mount our famous Super Sponge tire. The result is a true

MINI WIDE TRACK



Same O D as the standard wide track. Just as strong — because of those deep threads. Substantially lighter. And more Super Sponge to bear against the track surface.

About the neatest wheel-tire combination in model car racing. Available in black, grey or blue on black anodized wheels, complete with knock-offs, 3/4" or 7/8" diameter, 5/8" wide.
Pair _____ \$1.98

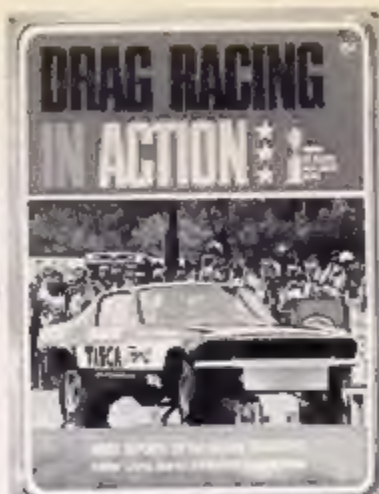
RIGGER

21919 AVALON - TORRANCE, CALIF.
25c Brings Complete Catalog

October 1967 / 73

THESE MAGAZINES
ARE RAPIDLY
BECOMING

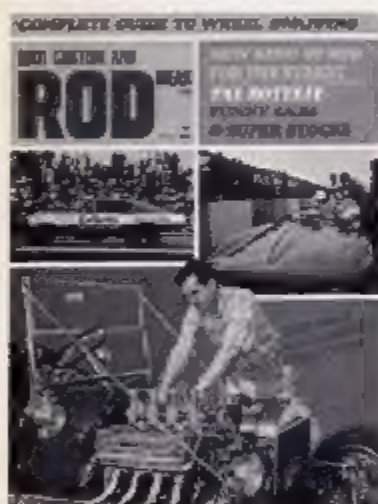
**RARE
COLLECTORS'
ITEMS!**



DRAG RACING IN ACTION Inside reports on 6 second Dragsters, Funny Cars, Super Stockers, Engineering **75c**



NEW FUNNY CARS Leading cars, engines, fuels, modifications, tires, traction. **75c**



1001 CUSTOM AND ROD IDEAS, FALL 1967 Special Reports, Customs, Rods, Funny Cars, Engineering. **75c**



1967 ENGINE ANNUAL 100 pages of how-to's and tips on increasing performance in engines. Plenty of photos. **75c**



1967 MODEL CAR RACING HANDBOOK The All New Guide to Slot Racing. Latest Accessories. **\$1.00**

AROUS PUBLISHERS CORP. 131 Barrington Place Los Angeles, California 90049

Simply put a ✓ in the box of the magazine you want.

Send me the issues I have checked.
My check for \$_____ is enclosed.

- ☐ Drag Racing in Action
☐ New Funny Cars
☐ 1967 Model Car Racing Handbook
☐ 1967 Engine Annual
☐ 1001 Custom and Rod Ideas, Fall 1967

Name _____
Street _____
City _____
State _____ Zip Code _____

Please print clearly. This is your mailing label

PSYCHEDELIC AUTO ART IS HAPPENING!



And the Thunder Charger's got it.
A wild psychedelic auto art decal.
Right across the complete side panels.
And the Thunder Charger's got more.
You saw it in the movie, Thunder Alley.
Like a cantilevered top, clear roof extension,
and zap front fender splits.
Like a fastback air foil, rear fender wings,
custom hood.
Like a 426 Hemi. Like everything.
But that auto art.
That's something else!

MPC IS HAPPENING!

